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Student Selection Research Program—GOBETZ

Physical Therapy in the Prenatal Program—SMITH

What Research Means to a Profession—Its Growth and Continuation—HINES

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Student Selection Research Program

A Preliminary Report

Wallace Gobetz, M.A.

History

In May, 1949, the American Physical Therapy Association authorized the New York University Testing and Advisement Center to conduct a pilot study to ascertain whether a scientific testing program might contribute materially to current student selection procedures. Based upon a description of the duties of the physical therapist, written by a job-analyst staff member of the Testing and Advisement Center after observation of and discussion with members of the physical therapy department of the Institute for Rehabilitation and Physical Medicine in New York City, a trial battery of six tests was administered in May and June of 1949 to eighty-two students completing the professional physical therapy training programs at Sargent College (Boston University College of Physical Education for Women), Graduate Hospital of the University of Pennsylvania, and the New York University School of Education Physical Therapy Department. The test scores were then correlated with records of academic achievement and clinical ratings, and the results were sufficiently promising to suggest that a widespread testing program, in which all physical therapy schools would participate, would be an eminently worth-while undertaking.

A report on the pilot study was submitted to the American Physical Therapy Association in October, 1949, and was approved by the Executive Committee. A more detailed report was submitted in December, 1949, and was presented by Dr. William D. Glenn, Jr., Director of the Testing and Advisement Center, at a meeting of the technical directors of the physical therapy schools at French Lick Springs, Indiana, in February, 1950. The positive implications of a testing program for the better selection of students were elaborated upon, along with recommendations for a more intensive and comprehensive research program. As a result of the favorable response of both the Executive Committee and the technical directors, a large-scale research program, extending over a period of three years, was formally authorized in April, 1950. The remainder of this paper is concerned with a description of this program, which is well under way at present.

Senior Psychologist, New York University Testing and Advisement Center, New York City.

Aims

The immediate objectives of the test research program are as follows:

(1) To provide an objective basis for selecting students for professional training in physical therapy.

(2) To predict the relative standing of students entering the professional phase of their physical therapy training with regard to (a) over-all academic achievement, (b) proficiency in super-

vised clinical practice, and (c) job performance as graduate physical therapists. (While many personnel-selection researches dealing with professional vocations attempt to predict success in training, relatively few attempt to forecast success on the job. Thus dental aptitude tests and nursing aptitude tests are usually correlated with grades in dental or nursing school, but rarely with performance as practicing dentists and nurses.)

(3) To develop a scientific rating procedure that will permit a more systematic and critical evaluation of the technical competence and personal characteristics of student and graduate physical therapists in clinical practice in order to (a) facilitate institutional and departmental administrative decisions and (b) provide a more precise identification of worker assets and liabilities as a basis for a constructive performance interview between the clinical supervisor and the student or graduate physical therapist.

(4) To assist administrative and supervisory personnel and graduating and practicing physical therapists in effecting a congenial job placement within the field that will provide the therapist with a maximum of job satisfaction, and the supervisor with an optimally effective worker.

Among the long-range objectives of the research program, the following merit special mention:

(1) To provide physical therapy schools with students of high caliber.

(2) To provide hospitals, departments, and other installations with more effective physical therapy staff personnel.

(3) To accord the field of physical therapy a higher professional status through the utilization of scientific selection and placement procedures, similar to those currently in use for engineering, medicine, law, and other professions.

THE TEST POPULATION

Tests will be administered to all students entering upon the professional phase of their physical therapy training in all approved physical therapy schools throughout the country in the years 1950, 1951, and 1952. Approximately six hundred students were tested in 1950, and similar numbers of students are anticipated for 1951 and 1952. Students currently in the second year of a two-year program and students still in the pre-professional phases of training are not considered in the present study, since the aim of the research program is to test beginning professional students and follow their progress over a maximum period of three years. In this way, statistics on the validation of the tests may be applied to subsequent groups of candidates for admission to professional schools, thereby permitting an estimate, before training, of how well the candidate will do in training and on the job. Since the research program is to be a three-year study extending from 1950 to 1953, progress reports will be available on students starting in 1950 for three years, for students starting in 1951 for two years, and for students commencing their training in 1952 for one year.

THE JOB ANALYSIS

One of the most vital elements of any test selection program is a detailed analysis of the job under consideration. Such an analysis should describe what the worker does, the conditions under which he does it, the physical, intellectual, emotional, and social demands of the job, and the characteristics of the worker that are essential to job success. With regard to personnel research, the aim of the job analysis is twofold.

(1) It provides a basis for the selection of criteria, or measures of job success, with which the test scores can ultimately be correlated to determine their predictive value.

(2) It serves as an empirical basis for selecting a test battery which will include as many of the relevant measurable aspects of job performance as possible.

As a preliminary to the job analysis in the present study, the comments made by the technical directors regarding the job description set forth in the pilot study were reviewed. A check list of questions was then devised to systematize the accumulation and classification of occupational data. In consultation with the executive staff of the American Physical Therapy Association, a number of installations were selected to be visited for the purpose of observing the practice of physical therapy. These installations were chosen so as to be representative of the occupation in terms of specialization, size of staff, case load, physical facilities, geographical location, equipment, and other relevant factors. A number of Testing and Advisement Center staff members, singly or in pairs, then visited these installations in all sections of the country in order to assure both representative coverage and independent study of the job of the physical therapist.

Information about the job was obtained by (1) observation of student and graduate physical therapists at work under typical field conditions, (2) inspection of technical and exercise equipment, (3) audition of classroom lectures and staff conferences, (4) consultation with clinical super-

visors, (5) informal talks with students and graduates, (6) interrogation of physicians, nurses, occupational therapists, and other professional personnel who work in close cooperation with the physical therapist, (7) study of the content of the pre-professional and professional curricula, and (8) analysis of such documentary materials as patient treatment forms, administrative forms, and student evaluation forms.

Each Testing and Advisement Center staff member wrote a detailed report of his findings, according to a prescribed outline which permitted standardization of observations without any appreciable loss in reportorial flexibility. The essential elements of each of these independent reports were then collated and organized in the preparation of a master job-description. This description in turn was edited and revised on the basis of critical comments made by the executive staff of the American Physical Therapy Association, the Advisory Committee to the Educational Consultant, and other highly qualified administrators, supervisors, and field workers.

The final job description used as a basis for test and criteria selection comprises some sixteen pages. It will be mimeographed and distributed to key personnel in the near future. An outline of its content follows:

I. Definition of Physical Therapy
II. General Duties of the Physical Therapist
III. Patients
  A. Classification of patients
  B. Types of disorders treated
IV. Staff
V. Working Conditions
  A. Space
  B. Case load
  C. Types of employment situations
VI. Record Keeping
  A. Patient treatment forms
  B. Administrative forms
  C. Student evaluation forms
VII. Treatment Procedures and Methods
  A. Preparation of patient
  B. Preparation of equipment
  C. Diagnostic testing
  D. Treatment modalities
VIII. Equipment
  A. Technical equipment
  B. Exercise equipment
IX. Professional Contacts
X. Worker Characteristics
  A. Personality
  B. Abilities
  C. Physical characteristics

SELECTION AND DEVELOPMENT OF CRITERIA

If one is to develop an effective test selection program, a fundamental question that must be answered is: Just what is it you are trying to predict? "Success on the job" is a highly abstract and nebulous concept until it is given precise definition by the establishment of unambiguous and concrete yardsticks of success. Until one has decided upon who is or is not a successful salesman or teacher, for example, one cannot devise tests that will predict success or failure in either vocation.

Since the object of the research program under discussion is to predict success not only during the training period but also during the post-training period, criteria against which to check the tests naturally fall into two broad categories; namely, training criteria and on-the-job criteria. Training criteria in turn may be broken down with respect to the areas of academic achievement and supervised clinical practice, while on-the-job criteria are necessarily limited in the present study to clinical practice job-performance evaluations. While it is true that physical therapists may go into teaching, supervision, administration, or other specialities, it is unlikely that many of the students under consideration will do so within the three-year span of the test program.

Based upon the job analysis and discussion with the executive staff of the American Physical Therapy Association, the following criteria have tentatively been adopted:

A. Training Criteria
  1. Academic achievement
    a. Honor-point ratio—This is an over-all numerical representation of each student's grades in professional school training in both didactic and clinical subjects. For the student starting a one-year program, this will represent his academic performance for all courses taken during the year. For the student beginning a two-year program, it will represent his scholastic performance for all courses taken during the two-year period.
    b. Graduation versus elimination from training—This is a comparison between students who have successfully completed their training and those who have been dropped because of poor grades, or who have quit of their own accord.
    c. Score on the Registry Examination
  2. Clinical practice
    a. Average of all grades received in clinical courses (expressed as an honor-point ratio)

b. Average of all ratings received in supervised clinical practice. These ratings will be made on a special rating form developed by the Testing and Advisement Center. The purpose of this rating form, which is applicable to both students and graduate physical therapists, is to permit a degree of standardization which will make the ratings by different supervisors in different installations more nearly comparable. This rating procedure is described in detail below.

B. On-the-Job Criteria

1. Job performance ratings—Ratings on persons who were originally tested as beginning professional students and who have subsequently obtained jobs will be made on the special rating form referred to above. Students graduating in 1951 will receive on-the-job ratings in both 1952 and 1953 (as well as a 1950 student rating while in supervised clinical practice). Those graduating in 1952 will be rated on the job in 1953 (as well as receiving a 1951 student rating while in supervised clinical practice). Those graduating in 1953 cannot receive on-the-job ratings within the three-year period of this study, although student ratings in supervised clinical practice will be available for this group, of course.

DEVELOPMENT OF THE RATING PROCEDURE

A special rating procedure to serve as a criterion of job performance in clinical practice is currently in the process of development. This procedure is designed to minimize the disadvantages of the traditional general-trait rating scale by providing the rater with a check list of specific job elements and worker characteristics which he can apply to the individual physical therapist. This check list consists of a series of statements on observable behaviors or characteristics which bear directly on job performance. Each statement has a scale value or weight, based upon the pooled judgment of a representative sample of the raters themselves. The rater simply checks each statement that applies to the ratee and leaves non-applicable statements blank. The score is the average of the scale values of the checked items. The check list is still in the experimental stage but will be available in final form to the clinical supervisors in ample time for the first student rating.

A few words regarding the construction of the experimental form are in order. Based on the job analysis and a consideration of rating scales in current use in physical therapy training centers, nearly four hundred statements characterizing the job efficiency and personal qualities of the physical therapist were prepared. These descriptive statements cover the following aspects of job performance: (1) personal appearance, (2) treatment technics, (3) knowledge and care of equipment, (4) relationship with patients, (5) relationship with physical therapists and other professional workers, (6) relationship with supervisors and attitude toward supervision, (7) work habits and attitudes, and (8) personality characteristics. Illustrative statements are:

uniform is crisp and clean
requires unnecessary instructions in job duties or procedures
turns off equipment when not in use
inclined to tell patient too much about his condition
popular with co-workers
works better when not supervised too closely
fails to review prescription or status of patient before initiating treatment
fails to observe time limits for treatment
work suffers when it is necessary to treat more than one patient at a time
makes constructive suggestions regarding procedures or equipment
eager to learn

In developing the final form, lists of these statements were prepared and "farmed out" to several clinical supervisors who will evaluate independently, on a numerical scale, the characteristic represented in each statement to determine its importance for success in physical therapy. Statements on which there is a high degree of agreement among the judges will be retained in the final form, and the scale values assigned each retained statement will represent the consensus of opinion.

The advantages of the check-list rating procedure over the conventional general-trait rating scale are as follows:

1. *Specificity.* The rater judges the ratee in specific situations with regard to behavior which can be observed by performance on the job. With general-trait scales, the traits mean different things to different raters and are so broadly conceived that the rater's judgment is likely to be based upon insufficient or selected data.

2. *Basis for constructive interview with the ratee.* Since the items are expressed in terms of job elements or duties, the supervisor can discuss specific instances in which the physical therapist excels or is deficient rather than speak in terms of such general traits as "quality of work," "initiative," and "dependability."

3. *Less control of the rating by the rater.* It is more difficult for the rater to slant his ratings to produce a desired result. The rater is asked to report rather than evaluate. He does not know the scale values of the items. A few important summary evaluations in which the rater is asked to express his judgment of the over-all competence of the physical therapist are employed at the end of the check list, however.

4. *Performance profiles.* Part scores as well as a total score are possible with this technic. Numerical scores can be obtained for each section of the check list (e.g., "treatment technic," "relationship with patients," "work habits and attitudes"), thereby permitting the construction of job performance profiles which disclose the ratee's relative strengths and weaknesses at a glance.

5. *Acceptability to supervisors.* The scale values are determined by a consensus of judgments by physical therapy supervisors rather than by a psychologist or other non-physical therapist and hence should be acceptable to supervisors in the field.

SELECTION OF THE EXPERIMENTAL TEST BATTERY

Consideration of the preliminary findings obtained in the pilot study, and intensive study of the results of the exhaustive job analysis, finally led to an experimental battery of seven tests. This battery includes the six tests employed in the pilot study plus one additional test. This battery is designed to cover as adequately as possible a number of measurable characteristics of physical therapy students considered to be of critical importance for success in school, supervised clinical practice, and clinical practice subsequent to graduation. Six of the tests are commercially available to qualified psychologists, while the seventh test (Biographical Information) has been constructed by the Testing and Advisement Center especially for this project.

For obvious reasons the names of these tests cannot be made public, but it is possible to convey an idea of their scope by listing briefly the abilities or characteristics which they measure.

1. *Intelligence* (over-all mental capacity, including the ability to think clearly, reason soundly, grasp new ideas quickly, follow instructions, make accurate judgments, perceive relationships, foresee consequences, and deal effectively with new situations). Intelligence is fundamental to the completion of both the pre-professional and professional academic requirements of physical therapy schools and to the exercise of judgment and mental alertness in the performance of clinical duties.

2. *Mechanical reasoning* (the ability to understand and apply the elementary physical principles underlying the operation of mechanical devices and to reason with concrete and mechanical objects). The effect of previous training and experience is minimized in this test so that the scores will not be too greatly influenced by recent courses in physics. While the job analysis did not point to the need for complete understanding of the workings of the various equipment used by the individual physical therapist, it did indicate the need for a basic understanding of the operating principles of such devices as the short-wave diathermy machine, low-frequency current generators, and other electrical and mechanical equipment. One supervisor underscores sufficient mechanical comprehension to understand the principles of levers and related mechanical devices to facilitate the recognition of postures that are not conducive to balancing, walking, and standing. Mechanical ingenuity (the ability to conceive of and develop new devices) is also desirable, since therapists may be called upon to devise or improvise equipment.

3. *Scientific knowledge* (factual knowledge of the biological and physical sciences, combined with the ability to understand, retain, interpret, and apply scientific principles). Such a test can be used to predict success in advanced, college-level science courses. A study of physical therapy school curricula (the presence of such courses as anatomy, physiology, and kinesiology) and the observation of job functions (need to understand physical therapy in relation to general medicine, orthopedics, neurology, surgery, etc.) indicate the necessity for a good fund of background information in the natural sciences.

4. *Knowledge of contemporary social problems* (acquaintance with contemporary economic and social problems—such as labor relations, housing, taxation, juvenile delinquency, and mental health). If the physical therapist is to function effectively in clinical practice, he must have a broad understanding of people, not only in terms of the psychological processes determining the patient's mental attitude toward his disability, but also in terms of the effect of the patient's socioeconomic and cultural background upon his chances for ultimate rehabilitation. Although the test measures knowledge, it may also be regarded as an indirect indicator of the student's social awareness and alertness to the contemporary social scene. As such, it is less dependent upon formal schooling than upon the

kind of information obtainable from newspapers and news magazines.

5. *Interests.* The importance of motivation to successful achievement is a recognized principle in virtually all fields of endeavor. The individual who has an intrinsic interest in his work activities is likely to give more of himself to the job than the person who has been attracted to the occupation solely by economic or prestige motives. Job satisfaction in the physical therapist may be expected to improve supervisor-therapist and therapist-patient relationships, promote cooperative and efficient behavior, minimize tension and restlessness, reduce turnover and absenteeism, and, in general, foster an infectious enthusiasm conducive to departmental morale. The test in question measures academic, recreational, and vocational preferences for ten broad areas of activity basic to the vast majority of occupations. It has been demonstrated that people in different occupations have characteristic patterns of interests. In the present study an attempt will be made not only to identify an interest pattern characteristic of physical therapists but also to isolate patterns distinctive of outstanding and run-of-the-mill workers.

6. *Personality.* While personality measurements may show insignificant relationships to academic achievement, they may be assumed to indicate fundamental differences in on-the-job performance. Given an adequate level of technical competence, there seems to be little doubt that the personality makeup of the physical therapist may well be a major factor in his success or failure in clinical practice. Through the media of a detailed personality inventory and a systematic exploration of pertinent biographical data (physique and health, education, work experience, family situation, childhood experiences, marriage, vocational orientation, leisure activities, social attitudes) information is obtained relative to the student's emotional stability, emotional maturity, energy level, emotional responsiveness, sociability, objectivity, thoughtfulness, cooperativeness, tolerance, masculinity or femininity of emotions and interests, social leadership, self-confidence, friendliness, and initiative.

TEST ADMINISTRATION

The tests are administered locally by the cooperating schools, since it is not geographically feasible to have the students report to one centralized testing agency. Moreover, since the tests will eventually be given by the schools themselves when they are used for selection purposes, it is important that the conditions of the research program correspond to the actual conditions under which the tests will be administered in practice. All tests are returned to the Testing and Advisement Center, however, for scoring and statistical analysis during the research phase of the program.

Every effort has been made to insure standardization of test administration by providing each of the schools with a detailed manual of instructions in which the need for strict adherence to the printed directions is underscored. One basis for the selection of these tests, in addition to the patent fact that they must measure factors relevant to job success, was simplicity of administration. Three of the seven tests are self-administering and untimed, while the other four tests each have a single time limit. The tests have no subtests or parts which require separate timing, with the result that errors traceable to inaccurate timing are reduced to a minimum. For a given test, the examiner has only to read the printed instructions aloud, start a stopwatch, and call time a specified number of minutes later. The total time for the administration of the experimental test battery is approximately six hours, usually distributed over two testing sessions. The final test battery which will actually be used for purposes of student selection may well be one or two hours shorter, depending upon how well the experimental tests hold up under rigorous statistical scrutiny.

The seven tests in the experimental battery yield a minimum of twenty-five scores for each examinee. Analysis of the individual items on each of the tests will permit the development of new, empirical scoring keys to supplement the scores presently obtainable, so that approximately thirty scores will be available for each student for statistical treatment. These scores will be correlated with the training and on-the-job criteria discussed above to ascertain the relative forecasting efficiency of each score. Separate analyses will be made for male and female students, for students with liberal arts, nursing, and physical education pre-professional backgrounds, and for students taking the one-year and two-year courses, respectively. National and local norms for physical therapy schools will be developed on each test retained in the final battery. The interrelationships of the academic and clinical criteria will also be studied to provide answers to such questions as: How well does academic achievement correlate with success in supervised clinical practice? How well does academic achievement correlate with job performance as a staff physical therapist? How well do ratings in supervised clinical practice predict subsequent on-the-job success? What is the relation-

ship between scores on the Registry Examination and physical therapy school grades? What is the relationship between Registry Examination scores and clinical criteria?

This analysis will first be performed upon the 1950 group and then repeated on the 1951 and 1952 groups to determine whether the statistics obtained from the first sample of students apply equally well to the second and third samples. Those tests that exhibit consistent validity on these successive samples will then be subjected to a multiple correlational analysis in which the tests' scores will be correlated with each other and with the criteria. Weights will be assigned to each test score to yield a composite score for each student that will have maximum predictive effectiveness. Knowing a student's composite score on the test battery, it will be possible to predict his relative scholastic and clinical performance. Cutting scores may be set by each school which will select a maximum proportion of potentially successful therapists while screening out a maximum proportion of potential failures. This critical score may be raised or lowered to accord with student supply and demand.

SUMMARY

A three-year testing program, having as its primary aim the prediction of training and on-the-job success of students entering the professional phase of physical therapy training, is now in progress. Consideration of the test scores of candidates for admission to physical therapy schools will provide school administrative personnel with an objective basis for accepting or rejecting an applicant and will enable them to forecast, before training, how well a student will do in both the didactic and clinical phases of the curriculum. Judicious use of test scores will also assist both the administrative personnel and the student in effecting a more congenial job placement of the student within the field. The tests are not intended to displace existing selection procedures but rather to supplement and clarify them.

Necessary in the development of the test selection program, but important in their own right, are the analysis of the job of the physical therapist and the development of scientific rating procedures for the evaluation of personnel. Based upon visits to a number of physical therapy departments and installations, a comprehensive job description has been prepared. This job description has served the dual purposes of providing criteria, or measures of job success, against which to check the tests and of serving as a basis for the selection of an experimental test battery designed to measure relevant aspects of job performance. Training criteria include measures of academic achievement (honor-point ratio, graduation from training, score on the Registry Examination) and measures of performance during supervised clinical practice (grades, ratings). On-the-job criteria include job-performance evaluations of persons who were originally tested as beginning professional students and who have subsequently obtained jobs as graduate physical therapists.

A special rating procedure to evaluate student and graduate physical therapy personnel is currently in process of development. The rating form is a check list consisting of statements of specific observable behaviors, characteristics, and job elements designed to cover the important aspects of job performance. It provides numerical scores determined by a consensus of judgments by physical therapy supervisors and administrators, but is also capable of qualitative analysis for purposes of constructive conferences between the supervisor and the therapist.

The experimental test battery consists of seven tests designed to measure intelligence, mechanical reasoning, scientific knowledge, acquaintance with contemporary social problems, interests, and personality traits and yields approximately thirty scores for each student for purposes of statistical treatment. The tests are administered by the professional schools and returned to the Testing and Advisement Center for scoring and analysis. The tests have been administered to approximately six hundred students entering upon training in all twenty-nine approved physical therapy schools during the year 1950, and will be administered to over a thousand additional students beginning training in 1951 and 1952. Since the tests are currently in the research phase, the scores cannot yet be used for selection purposes. At the conclusion of the three-year period of the study, the statistical analysis of test scores should result in a final test battery sufficiently flexible to be adapted to the needs of the cooperating schools and sufficiently comprehensive to permit national as well as local predictions of student performance.

Physical Therapy in the Prenatal Program

With Emphasis on Preparation for Natural Childbirth

Gillian Griffith Smith, B.S.

Much has been written lately about natural childbirth, and an increasing amount of interest has been shown in it by doctors all over the country. At Duke Hospital, Durham, North Carolina, a new program of prenatal work has been instituted recently whereby weekly classes of six to eight prospective mothers are taught exercises in preparation for childbirth.

The program carried on at Duke Hospital is based on the prenatal work of Dr. Grantly Dick Read, a British doctor, and Mrs. Helen Heardman, a British physical therapist. Mrs. Heardman came to the United States in 1948 and taught nurses at the Maternity Center Association, New York City, and the Grace-New Haven Hospital, New Haven, Connecticut.

Mrs. Heardman emphasizes that childbirth is a natural physiological process for which the mother's body, under normal conditions, is adapted as pregnancy advances. The program is planned with the aim of aiding the body to perform the process of labor and delivery with the greatest efficiency and the least resultant pain, tension, and fear; also to obtain return to normal as quickly as possible afterwards. Not all those attending the classes intend to have natural childbirth, but the exercises are considered valuable for general prenatal preparation, as well as for delivery with no anesthetic, and also for post-partum care.

In general, the main purposes of prenatal training are as follows:

(1) To develop good posture to be maintained throughout pregnancy and to be carried on after delivery

(2) To teach relaxation to be used during the first stage of labor

(3) To promote elasticity and strength of abdominal muscles and muscles of the perineum so that they can work more efficiently during labor and regain normal tone more rapidly after delivery

(4) To mobilize pelvic joints and the lumbar spine, and to stretch the perineum

(5) To keep legs and feet in good condition for additional weight bearing by strengthening muscles of the lower extremities and aiding circulation

(6) To improve circulation in the pelvic region

(7) To help the mother to be in good general physical condition before delivery, as she will have at least an average of one hour of hard work expelling the child

(8) To prepare the mother mentally for the process of childbirth so that she enters labor with the confidence and knowledge of how to help, free from worries stemming from ignorance, and knowing she is well prepared for the birth of her child and for the care of her own body afterwards

The prospective mothers are taught in small classes, so that they can benefit from the psychological effect of group participation and practice the exercises together. It has been found that the exercises are learned in two or three sessions. The mothers are then instructed to perform them at home for fifteen or twenty minutes daily, and to incorporate as many of the exercises as they can into their daily household activities. Classes are started in the fourth month of pregnancy.

Physical Therapy Department, Duke Hospital, Durham, N. C.

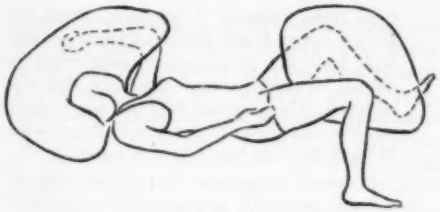


Figure 1.

As the program is a new one at Duke Hospital, we are not able, yet, to tabulate results of the effectiveness of the prenatal exercise program. The mothers we have had to date have been most enthusiastic about it, however.

The specific exercises given are as follows:

(1) Abdominal breathing. The mother is back-lying on a firm bed, with the head supported and the knees bent. Deep abdominal breathing is taught so that it can be done at any speed and to any depth, the aim being to take as long as possible for inhalation and as long for exhalation. The chest does not rise.

Purpose:

(a) For use during first stage of labor, as an aid to relaxation

(b) To diminish pressure on the contracting uterus as the relaxed abdominal wall is kept rising (If practiced, one inspiration can be made to last through most of the long contractions and the whole of the shorter ones.)

(c) As a psychological aid to the mother, so that she feels she is doing something tangible to help during the first stage of labor

(2) Relaxation. *(See Figure 1.)* This is done back-lying at first, with a pillow under the head and a small roll under the knees. Later, when the supine position becomes uncomfortable, it is practiced side-lying. When side-lying, the trunk and each extremity are firmly supported so that full relaxation can be obtained. Relaxation is taught by first contracting each main muscle group, then relaxing it; later, it is practiced from the position of normal lying without the preliminary contracting. Abdominal breathing is practiced with relaxation during the first stage of labor.

Purpose:

(a) Relaxation of all skeletal muscle groups to aid in relaxation of smooth muscle (The first stage of labor ends with full dilatation of the cervix so that the baby's head can pass through; it is believed by some that voluntary muscle relaxation promotes relaxation of the cervical musculature and so produces more rapid dilatation.)

(b) Relaxation to alleviate pain coming from muscle tension as a result of the mother's reaction to uterine contractions

(3) Pelvic tilt

(a) Tilt pelvis.

(b) Extend left knee.

(c) Lower left leg to floor with the knee straight.

(d) Raise leg, and replace to original position.

(e) Repeat right.

(f) Relax pelvic tilt.

Purpose:

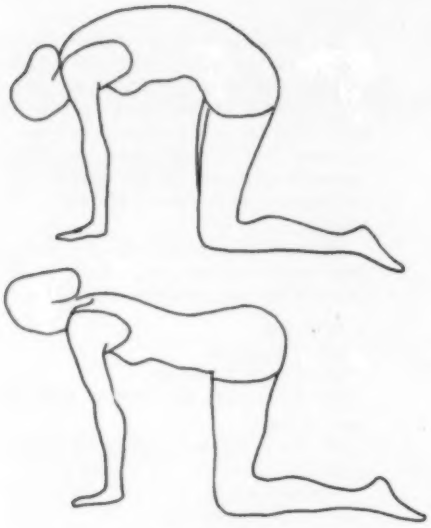
(a) As an abdominal exercise—Abdominals must be strengthened both for pushing the baby down during delivery and for aiding in the regaining of normal tone afterwards. (Following pregnancy, the line alba stretches about four inches, and, as it is not elastic, the rectus abdominis must compensate in order to flatten the abdomen.)

Figure 2.

(b) To improve general posture and aid in carrying the baby correctly, with as much poise and grace as possible

(c) To reduce fatigue and alleviate possible low-back pain during pregnancy, resulting from increased lordosis

(4) Contraction of the muscles of the perineum. *(See Figure 2.)* Back-lying with knees straight and ankles crossed, mother contracts hip adductors and



Figures 3 and 4.

gluteals, maintains her pelvic tilt, and reaches toward the end of the bed with the feet. This is done slowly, adding contraction of the anus. The exercise is next done standing against the wall, maintaining pelvic tilt and coming up on toes, contracting the same muscles.

Purpose:

(a) To increase the strength and elasticity of the muscles of the perineum, to help prevent tearing and pain during delivery, and to aid regaining normal tone afterwards

(b) To strengthen leg muscles

(5) Pelvic rocking. *(See Figures 3 and 4.)* Performed kneeling on all fours, elbows straight, and hands shoulder-width apart. Back is first "humped" by contracting abdominals, tilting pelvis, and tucking head down toward chest; back is then slowly arched by bringing up head and increasing lumbar curve. Pelvis is "rocked" slowly in this manner about five times.

Purpose:

(a) To increase the flexibility of the lumbar spine

(b) As an abdominal exercise

(6) Trunk twisting. Crook-lying, knees together, upper trunk firmly anchored to bed with arms out at sides, the lower trunk is twisted so that the knees touch the floor on each side. This is varied with one leg straight and the other bent, reaching with flexed knee to touch the floor beyond the straight leg.

Purpose: Contraction of oblique abdominals, important in regaining the patient's "figure" in the post-partum period

(7) Foot and leg exercises. Quadriceps setting; knee extension; ankle circling; toe curling; standing with long arches lifted; coming up on toes and down on outer borders of feet; and half knee-bends.

Purpose:

(a) To strengthen leg and foot muscles for increased weight bearing

(b) To aid venous return, which is slow in the legs during pregnancy

(8) Back-lying with feet elevated for twenty minutes per day

Purpose: To aid venous return in the lower extremities

(9) Stretching positions

(a) Sitting tailor-fashion, ankles crossed, or soles of feet facing; knees are pressed down toward floor. *(See Figure 5.)*

Purpose: To stretch the perineum and tight hip muscles

(b) Squatting, holding on to a piece of furniture, heels on floor, feet wide apart and parallel, back rounded; feet are gradually brought closer together. To be done with flat heels or no shoes and gradually incorporated into household activities such as dusting, shining shoes, etc.

Purpose:

(a) To increase natural enlargement of the pelvic cavity by stretching the pelvic joints and intervertebral ligaments of the lumbar spine

(b) To stretch the perineum and widen the sub-pubic arch

SUMMARY

The prenatal program is valuable as preparation for childbirth and for regaining tone, strength, and coordination in the abdominals, muscles of the perineum, and muscles of the low back after de-

livery. Relaxation and abdominal breathing are given to prepare for the first stage of labor; pelvic tilting is emphasized as a basis for good posture, to mitigate fatigue and back-aches during pregnancy and to aid the mother in standing and moving gracefully; exercises are given to strengthen muscles of the feet and to assist venous flow in the legs; squatting and cross-legged sitting are practiced to stretch the pelvic ligaments, hip muscles, and perineum.

The program is aimed to help the body perform the process of labor with the greatest efficiency and the least possible tension and pain; to this end the mother is prepared mentally so that she may enter labor with confidence and assurance.

(The author wishes to express her appreciation to Eleanor Easley, M.D., of Durham, North Carolina, for her assistance in the writing of the paper.)

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Figure 5.

Meet Our New Contributors

Gobetz, Wallace, New York University Testing and Advisement Center, Washington Square East, New York 3, New York. Mr. Gobetz received his B.A. and M.A. degrees from New York University. He served for several years as a graduate assistant in psychology at New York University and for one year as an instructor in psychology at Brooklyn College. From 1942 to 1946 Mr. Gobetz served as a Personnel Consultant and Clinical Psychologist for the United States Army. After his discharge from the Army he accepted his present position, and also that of Instructor in Psychology at the same institution. He is a member of Phi Beta Kappa, the American Psychological Association, the New York Society of Clinical Psychologists, the National Vocational Guidance Association, and the American Association of University Professors.

Smith, Gillian Griffith, Box 3445, Duke Hospital, Durham, North Carolina. Mrs. Smith received her B.S. degree from Tufts College, Medford, Massachusetts, in 1948 and her Certificate of Physical Therapy from the Bouve-Boston School of Physical Education, the same year. She worked at James Walker Memorial Hospital, Wilmington, North Carolina, in the poliomyelitis epidemic of 1948, and was employed at the Bergen County Hospital, Ridgewood, New Jersey, until August, 1949. Since then she has been a member of the staff of the Physical Therapy Department of Duke University Hospital. Mrs. Smith is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

What Research Means to a Profession — Its Growth and Continuation*

H. M. Hines, Ph.D.

The president of a university, on the occasion of its one hundredth anniversary, commented that a modern university has three major functions to perform, i.e., teaching, professional service, and research. It would appear that any profession, and especially those associated with the healing arts, has essentially these same obligations to meet. The history of the development of any of the professions related to the health arts and sciences shows that the organization of teaching and of professional service precedes that of formalized research. My observations during the past decade have convinced me that physical therapy is undergoing rapid maturation in the area of research development.

What is meant by the term "research"? Webster defines research as "studious inquiry or examination; critical and exhaustive investigation or experimentation having for its aim the discovery of new facts and their correct interpretation, the revision of accepted conclusions, theories, or laws in the light of newly discovered facts, or the practical application of such new or revised conclusions." Research does not flourish when it is forced to develop as an isolated segment of our professional experience. Its most effective development comes when it is closely integrated with professional service and teaching. Thus the three sides of a triangle, represented by teaching, professional service, and research, act as mutual synergists rather than as antagonists. Research is too frequently regarded as an activity which is carried out only behind the closed doors of ivy towers and laboratories with the aid of extensive grants, expensive apparatus, and elaborate technical service. Too infrequently do we recall that many great discoveries and their applications have been made during the routines of teaching and professional service. The value of research experience to an individual is in part due to the development of a certain attitude of mind. The disciplines of research make one a better teacher and a more efficient practitioner of his art. We are too prone to evaluate the success of research in terms of the number of published manuscripts. Much valuable experience may be derived from adventures and experiences of which the results are never published.

It is inevitable that research will continue to grow and develop in your professional area. You can, by your attitudes and acts, either accelerate or decelerate its progress, but you cannot prevent its ultimate development. Research problems are often of such a nature as to require the use of highly specialized technics which can be acquired by the investigator only after a long period of training. The opportunities for physical therapists to acquire the necessary disciplines through special courses and graduate training are increasing. Many research projects require the cooperative efforts of several individuals, each having his own area of specialization. The physical therapist engaged in such a research project may be required to collaborate with physiatrists, nurses, occupational therapists, physical educators, physicists, physiologists, anatomists, and other groups. Such a situation demands the ultimate in teamwork and requires the development of tolerance and respect for the opinions and efforts of others.

In closing I am going to be courageous enough to make certain suggestions to the members of the American Physical Therapy Association. It is up to you to decide which of them, if any, should be implemented, now, or in the future. I shall try to be brief and concrete. It occurs to me that the inevitable increase in research which will be carried out by the members of your profession will require expanded channels for publication. This prediction introduces an economic problem. The PHYSICAL THERAPY REVIEW might consider expansion of its pages and volumes in order to afford an outlet for

* Department of Physiology, State University of Iowa, Iowa City, Iowa.

Read at the twenty-seventh annual conference of the American Physical Therapy Association, Cleveland, June 1950.

the publication of research manuscripts submitted by its membership. The time allotted for the presentation of research papers at your annual meeting could be extended in order to permit the inclusion of a larger number of papers. To accomplish this it may be necessary to curtail the length and scope of the time allotted to symposia. Perhaps the objectives which are assumed to be accomplished by symposia can better be accomplished through the medium of published reviews and monographs. Inasmuch as the scope of research in any area is admittedly broad and varied, care must be exercised in the selection of the papers to be read at meetings to avoid over-emphasis on topics of special interest to the members responsible for arranging the program. The democratic way of letting every member present a paper, if he or she so chooses, has many points in its favor. However, when this is not feasible, an opportunity to publish an abstract of the paper should be offered. An opportunity for frank discussion and criticism of all papers read at meetings should be offered.

The development of research in the area of physical therapy would be greatly aided by the establishment of fellowships for the training of individuals interested in research as well as for those interested in practice and teaching.

Finally, let us not be handicapped by a professional inferiority complex. Many members of the American Physical Therapy Association are capable of conducting excellent research. Many more should be trained in the disciplines of the scientific method. One can be certain that research means much to a profession, its growth, and continuation, but one cannot be too certain of cause and effect relationships.

A Physical Therapist's Trip to Europe

All of us try to save for our "old age," and physical therapists are no exception. However, I suddenly decided I would rather be poverty-stricken in the future and have a trip right now. So I went to Europe this past summer.

My trip was planned by a travel bureau, but it was not a tour in the sense that I went with a group. I went alone, and found it very easy, and a wonderful way to get acquainted with all sorts of people. I had letters from friends and from the National Office of the American Physical Therapy Association to the physical therapists in the countries to which I went and to a wonderful doctor in Copenhagen who is a friend of my medical advisor here.

I flew by Scandinavian Airlines from New York on a hot, foggy day in August and arrived in Prestwick, Scotland, eleven and a half hours later, then to London by another plane. In London! It seemed impossible that I was seeing the rows of old houses, the millions of chimneys, traffic on the "wrong" side of the street, the Tower of London, Westminster Abbey, London Bridge, and all the things I had read about all my life.

Doris Worsfold, Executive Secretary for the Central Council for the Care of Crippled, and Olive Sands, retired head of the British physical therapists, were very good to me. Miss Worsfold took me to Sussex for luncheon with our old friend Dr. James B. Mennell, who sends his greetings to all his friends here. Miss Sands took me for a long drive on Sunday in her tiny green Morris car to Hampton Court and Windsor and also to see some fine horses at the stables of the famous Horace Smiths.

England is lovely, green and rolling; the heather just coming into bloom; and, everywhere, names and places that make one's mind and heart thrill with ancient memories. Runnymede, boating on the Thames, the Embankment, Piccadilly and Trafalgar Square; bright red double-decker busses; tiny, black, secluded taxicabs; pots of strong tea and racks of cold toast—all of these are England.

Then by plane to Holland, just as I had pictured it—canals, tall, narrow houses, wide green fields dotted with red-and-tan and black-and-white cows, a few windmills, and thrift and cleanliness and plans for the future everywhere. The window of my hotel looked out on the Amstel River, and directly across was a canal that came from the harbor. Trains of barges loaded with

(continued on p. 59)

Editorials

• The high level of professional growth achieved by physical therapy is clearly indicated by the appearance in this issue of the preliminary report of the Student Selection Research Program. The American Physical Therapy Association has always actively supported the elevation and subsequent maintenance of educational requirements for physical therapists, both in the prerequisite and professional phases of their education. Well-qualified and well-rounded personnel is the most effective guardian of the future of a profession. It is essential that only those students equipped to provide the best service should be encouraged to pursue education in physical therapy. In view of the acute shortage of personnel, and with limited educational facilities, it is wise to restrict enrollment to those individuals for whom success in the profession can be predicted.

The prediction of success is only one of several worth-while contributions to be made by the Student Selection Program so well presented in this issue of the REVIEW by Mr. Gobetz. While the Research Program is a three-year undertaking, its value will reach far beyond this limited period.

The American Physical Therapy Association was fortunate in securing the services of Dr. William Glenn and his associates of the Testing and Advisement Center of New York University to conduct this program. An undertaking of this type is highly technical and rightly belongs under the guidance and direction of a group specializing in testing and guidance. Members of the physical therapy profession have been and will continue to be readily available for consultation. Results and implications of the Student Selection Research Program will be much more valuable to physical therapy and education because of this competent direction.

All physical therapists, whether they teach or not, can feel justifiably proud of their part in this program. Each and every physical therapist is urged to carefully read the Preliminary Report of the Research Program. You will find it interesting, but more important, you will become better informed regarding the educational activities of the Association.

• Publication in this issue of Dr. Hines' excellent comments regarding the value of research in professional development affords an opportunity to call your attention once again to the research section of the annual conference program. Although this section is comparatively new, it has been well received and supported by the membership. It is of great importance to each of us that this valuable opportunity for professional expression should receive every possible encouragement.

Dr. Hines has made many good points. May we reemphasize one in particular: that this section exists for the *entire membership*, for both participation in presenting material and active discussion of papers. The response so far has been excellent, and in future years we predict this will come to be considered more and more as a primary contribution of the conference.

• Easter Seal month, sponsored by the National Society for Crippled Children and Adults and its affiliated societies, begins February 25th.

Easter Seals provide the major support for a multitude of important services such as treatment training centers, clinics, professional personnel, convalescent homes, special schools and classes, camps, recreation programs, and many other facilities.

All of us in the field of physical therapy are fully aware of the need for these facilities and the need for more and more of them to aid constantly increasing numbers of children. Our realization of the needs is keener because of our first-hand knowledge of children who cannot walk without assistance, who cannot talk without specialized aid.

When we contribute to the Easter Seal campaign, we help maintain services for them. This year, if we give generously, we may help expand these services to include more children needing specialized care.

It is our responsibility—our privilege, too—to help these children walk, talk, and live as vital members of their families, their communities, and our nation.

Let us give generously to Easter Seals!

CONFERENCE 1951

HOTEL COLORADO
Glenwood Springs, Colorado
June 16 to 22, 1951

In keeping with the setting and spirit of the 1951 Annual Conference this June, the theme suggested for the scientific program is "Frontiers in Physical Therapy." A new feature planned by the program committee, which should be of interest to all members, is a series of practical demonstrations on clinical workshops covering certain technics in the field. These will relate to aspects of therapeutic exercise and electrotherapy procedures. The demonstrations will be held in smaller meeting rooms in the hotel and will be repeated in order to give everyone an opportunity to attend.

General program topics include: physical therapy in chest disabilities, gait analysis and special problems of the lower-extremity amputee, and the relation of physical therapy to a psychiatric program. Details of the program schedule and participants will appear in forthcoming issues of the REVIEW.

Early interest in the research section of the Conference program indicates that this session will be well supported. Those planning to submit material for possible presentation at the Conference should send one-page summaries to the program chairman, Marian Williams, not later than March 15th.

Facts about the Conference

Rates

American Plan. Eleven dollars a day, double; ten dollars a day with three in a room. There are no singles. Select a roommate, or, if you do not know anyone attending, the hotel will assign you. Rooms are large, and many accommodate three very nicely.

Reservations

Will be made with the hotel. A reservation blank will be in the March REVIEW.

Parking Space

No problem

Registration

Active, Inactive, and Associate members —$5.00
Student members—$2.00
Members of allied professions and physical therapists from other countries—no fee

Chuck Wagon Dinner

Western Cabaret. Since we are on American Plan all meals are included in room rate, but two dollars will be charged to cover additional cost of these two special functions. Total cost of registration and entertainment—$7.00

Note

Registration is to be in advance. Blanks will be sent out in April.

Business Meetings and Program Schedule

June 14th and 15th	Executive Committee Meetings
June 16th—all day	School Section
June 17th—all day	House of Delegates
7:30 p.m. to 9:30 p.m.	Advisory Council Meeting
June 18th	
9:00 a.m. to 12:00 noon	House of Delegates
2:00 p.m. to 4:00 p.m.	Advisory Council Meeting
4:00 p.m. to 6:00 p.m.	Punch Bowl Hostess—Colorado Chapter
7:30 p.m. to 9:00 p.m.	Meetings: Standing Committee, National Chairmen, and Chapter Chairmen. Movies
June 19th	
9:00 a.m. to 12:00 noon	Panel— Lower Extremity Amputee
2:00 p.m. to 5:00 p.m.	Trip to Aspen
7:30 p.m. to 9:00 p.m.	Western Cabaret
June 20th	
9:00 a.m. to 12:00 noon	Panel—Chest Disabilities
2:00 p.m. to 5:00 p.m.	Clinical Workshops— Chest, Nerve Injuries (electrical stimulation and testing), Lower Extremity Amputations
7:30 p.m. to 9:00 p.m.	Research Papers

June 21st

9:00 a.m. to 12:00 noon	Panel—Chest Disabilities
2:00 p.m. to 5:00 p.m.	Clinical Workshops—Chest, Neuromuscular Disabilities, Nerve Injuries (electrical stimulation and testing)
6:00 p.m. to 8:00 p.m.	Chuck Wagon Dinner

June 22nd

9:00 a.m. to 12:00 noon	Physical Therapy in Neuropsychiatry

MARIAN WILLIAMS, *Chairman*
OLENA COLE
MARGARET KOHLI

The Director Reports:

On December 30th the National Office moved from the fifth floor to rooms 1315 and 1316. The rooms are more spacious and lighter. Those of you who have visited the office can understand how much larger quarters were needed. There is actually room to move around and there is "sitting" space for visitors. Whenever any of you are in New York please stop in and see us.

As you will note elsewhere in this issue, plans for Conference are shaping up. The Colorado members are really planning surprises for you. It will be an unbeatable combination of work and play.

There is a little change from the usual pattern of House of Delegates meeting. The House will be in session all day Sunday and Monday morning. Most organizations do it this way and it was thought that it was worth trying. This will allow more free time during the week, which many of you have requested.

Lucy Blair, Polio Consultant, is visiting polio centers in Iowa and Illinois in January. Margaret Moore leaves the last of January for conferences with the staffs of the approved schools in St. Louis, Kansas City, Iowa City, and Chicago. I go to Washington on January 14th for a consultants' meeting of the Women's Medical Specialist Corps. The personnel needs of the Corps will be discussed.

The Bolton bill, which if enacted would provide commissions for male nurses and physical and occupational therapists, has been reintroduced in the House of Representatives, number HR911. Senator Ives of New York has introduced a companion bill in the Senate, S661.

A visit was made to the Bureau of Medicine and Surgery of the U. S. Navy in December with the Executive Director of the American Occupational Therapy Association, Wilma West. It was learned that the Navy at that time had no plans, either for new appointments or for calling to active duty those holding Reserve commissions, although it was indicated that the latter may volunteer for duty. In answer to questions regarding the WAVE Corps it was explained that therapists were or could be assigned to the Medical Service Corps, but there were no vacant commissions, since only 20 percent of the Corps could be commissioned. Navy nurses who were trained at Navy expense in civilian schools are still members of the Navy Nurse Corps but are assigned to physical therapy duty.

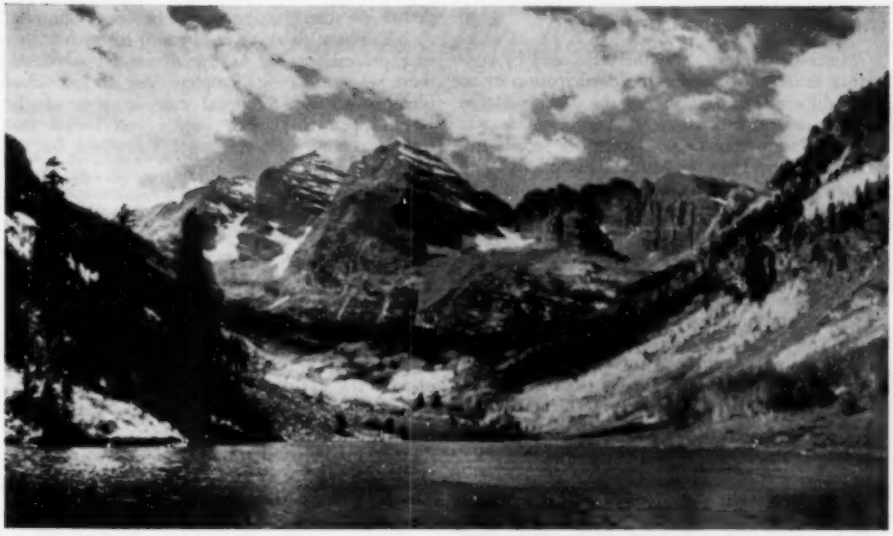
Former WAVES assigned to Hospital Service Corps or other areas, and who have completed physical therapy training, are urged to apply for transfer to their new professional specialty. If applications for commissions are not accepted by the Navy, application for a commission may be made to the Women's Medical Specialist Corps of the Army or Air Force. Physical therapists who were members of the Navy Nurse Corps, or WAVES holding commissions other than physical therapist, are also urged to transfer to their new professional specialty. Requests should be presented in writing to the Bureau of Personnel, United States Navy, Washington 25, D. C.

Both Miss West and myself pledged interest and full cooperation in the recruitment of therapists, should the need demand it.

A combined memo from the National Chairmen, House of Delegates, and the National Office has been sent to the chapters. This is of interest to every member. Be sure to be there when it is read and discussed in your chapter. Take particular note of the "Blueprint for Chapter Recruitment Programs." As our recruitment program, of necessity, must expand, this will help each chapter and member to know what to do and how to do it. Every member should consult his local chapter regarding details of this "blueprint" and then recruit at least one potential physical therapy student.

All of us in the National Office appreciated the many Christmas cards which we received. We in turn wish all of you a Happy New Year.

—MILDRED ELSON



Maroon Bells (14,126 ft.) and Lower Maroon Lake, Alpine Gem of the Glenwood Springs Region

Your Convention Vacation

This is the month for you to begin plans for your "Convention-Vacation" trip or trips. Some tours are operated all the year around; others are strictly seasonal. Your special interests and finances will govern your selections, but all are well worth the time and money spent. See your local travel agent now.

From Denver, the Rocky Mountain Special Three-day Circle Tour is available at $32.75, plus meals and incidentals. This starts on any Tuesday or Friday from the first week in June and takes in many sights; including Long's Peak, Mt. Evans, Lookout Mountain, the Continental Divide, Idaho Springs, Georgetown, Loveland Pass (11,992 ft.), Leadville, and many interesting spots in between. The second day includes the Angel of Shavano, an eternal symbol on Mt. Shavano, the Arkansas River and Royal Gorge, and the Salt Creek Canyon Road to Colorado Springs where the third and final day is spent traveling to the summit of Pike's Peak.

Perhaps you would like to see everything in and around Colorado Springs. There are innumerable places to visit, and tours range in price from $3.95 to $11.50, depending on what and how much is to be seen.

From Glenwood Springs, during the Convention week, there will be a special tour to Aspen and the ski country. More about this later. And, what is more exciting is a trip to the southwestern corner of the state to Mesa Verde National Park—a remarkable combination of spectacular scenery, intriguing prehistoric ruins of the Cliff Dwellers, and a quiet, restful atmosphere away from crowds. You may either take tours guided by rangers of the Forest Service, or go off individually. Here is a way to spend a delightful two or three days exploring. The round-trip fare from either Denver or Glenwood Springs is eighteen dollars.

Then there is Taos and Santa Fe, New Mexico—the land of Indian Pueblos, adobe missions, and primitive villages tucked away in the mountains. Bus fare, round trip from Denver or Glenwood Springs, is nineteen dollars.

Detailed information and travel folders may be secured by contacting Miss Annetta Wardley, Cerebral Palsy Clinic, Children's Hospital, Denver, Colorado.

—ETHEL BRIESEMEISTER
Publicity Chairman, Colorado Chapter

The White House Conference

"Multi-disciplinary" was the term used by conference leaders to describe the participation of so many different professions at the White House Conference for Children and Youth which was held in Washington, D. C., December 3rd to 7th, 1950. Executive Director Mildred Elson and I had the privilege of representing the American Physical Therapy Association.

The general efficiency with which the five thousand delegates were registered and organized, as well as the smooth mechanics of the entire conference, was nothing short of phenomenal. The immediate atmosphere of courtesy and congeniality among this large group was impressive, and was particularly outstanding in such a heterogeneous gathering. (There were delegates from every part of the United States and they represented every group which would in any way be concerned with the welfare of children and youth.) All had come to work, and delegates soon became friends through discussion of their interests and their eagerness to learn from others.

To accomplish the objectives of the conference, the delegates were divided into thirty-five work groups. These small groups were really the heart of the conference. Each of the work groups developed ideas on a particular phase of how children could be helped to develop the mental, emotional, and spiritual qualities essential to individual happiness; or what physical, economic, and social conditions are necessary for this development. Delegates dealt concretely with problems involved in the attainment of the conference goal, using as resource material facts presented at the larger meetings.

As requested, Miss Elson and I were assigned to the group which considered the problems of children with severe physical or mental handicaps. There were approximately a hundred and fifty delegates in this group and it was further divided into smaller groups of eight to ten delegates. These smaller groups were given the responsibility for discussing such topics as education, recreation, diagnosis, and treatment, or vocational rehabilitation. The speed and efficiency with which these small groups plunged into their discussions were noteworthy and the amount of work accomplished was outstanding for such a short period of time. Upon analysis it is felt that this was possible because all the participants were leaders in their fields, and therefore were able to express their ideas concisely and clearly.

It was particularly interesting to note the unity exhibited by the participants as they worked together on their assignments. In the beginning, each had been thinking in terms of his own particular profession, but as the discussion advanced, there was an almost complete loss of individual identity—it was the total consideration of the handicapped child. For awhile you forgot that there was a physical therapist! Teamwork for the individual child was the focus.

Recommendations from all thirty-five work groups were condensed and presented for adoption at a final plenary session. The recommendations were broad in scope and there was lively discussion from the floor on many of the basic issues—such as religion in public schools, racial segregation, etc. The majority of the recommendations were adopted, with some amendments, after a strenuous all-day session. It was fascinating to observe the parliamentary procedure used in handling so many delegates; needless to say, the chairman was not envied.

There were many interesting exhibits at the White House Conference. Our American Physical Therapy Association exhibit was quite successful! A great many of the delegates came by and showed an interest in discussing our profession and its value as a therapeutic agent in the treatment of children.

It remains to be seen how much will emerge from the basic objectives adopted by the conference. Many of these objectives might seem obvious to those of us working daily with children, but we must remember that there is constant need of interpretation to lay groups. If the plans for future action set up by the White House Conference can be accomplished, much will have been gained for the welfare of children and youth in the United States.

—MARY CLYDE SINGLETON, *President*
American Physical Therapy Association

Membership News

New Members

Jesse E. Chappell
Esther Feldsher
Shirley Hanson
Betty May Jackman
Dorothy Kikuchi
Bernard F. Knapik
Lt. Don F. McElrath
Mrs. Jeannette T. Moore
Lt. Judith Ploss
Eugene V. Randolph
Lettie E. Stewart
Lt. Irene Waters
Mrs. Jean C. Agee
Eunice L. Anderson
Betty D. Bair
Cornelia A. Burrill
Elizabeth M. Carey
Henri Guyette
Ethel L. Henry
Lavina Horkman
Louise Kehmeier
Joseph Manchin, Jr.
Joan K. Olness
Lois C. Perkins
Campbell Snowberger
Cora B. Sunetaro
Joseph Eisenberg
Helen L. Flake
Lt. Nellie A. Henson
Alice Jasnosz
Lawrence J. King
Lena E. Langella
Lt. Mary S. Moobs
John W. Moyer
Florine Prusak
Mrs. Kathleen R. Schovanec
Louis Treisman
Joan M. Young
Harold R. Andersen
Evelyn E. Bachmann
Nancy Jane Bell
Robert E. Butcher
Harold Feldman
Clarence W. Hardiman
Lydia Holley
Barbara L. Jenks
Edward Lampton
Harriet E. Morrison
Angeline Parker
Paul P. Proud
Margaret Steele
Alberta B. Wilson
H. Virgil Davis
Mrs. Fern Giessman
Fern Horine
Joseph Mack
Mrs. Marcelle H. Meretey
John Rugaart, Jr.
Cynthia Smith
Paul R. Urda
Mary C. Bernsen
Clifford Heidinger
Michael Keropian
Katherine Martin
Violet R. Pfeiffer
Charles P. Schuch
Lillian V. Thomas
William Weindell

Marriages

Paula Power, Colusa, now Mrs. Paula P. Wildanger, Berkeley, Calif.
Nancy A. Batemen of Melrose, now Mrs. Nancy B. Cummings, Pittsfield, Mass.
Marie S. Crawford, now Mrs. Marie C. Zeiler, Pittsburgh, Pa.
Thelma Junker to Ralph Kemink, Grand Rapids, Mich.
Denise Deschamps, now Mrs. Denise D. Warner, Fresno, Calif.
Gloria Curran, now Mrs. Gloria C. Jantzen, Matawan, N. J.
Elsie-Eloise Hyde, Calais, Me., now Mrs. Elsie-Eloise Hopkins, Everett, Mass.
Frances Wakeman, Albany, N. Y., now Mrs. Frances W. Erickson, Cleveland, Ohio.
Margaret M. Kohler, Brookline, to Earl F. Glock, Newtonville, Mass., December 29th.
Martha E. Kettler, Newport, R. I., now Mrs. Martha K. Lenihan, Le Mars, Iowa.
Joyce M. Stillman, Mason, Mich., now Mrs. Joyce S. Libby, Hampden, Mass.
Eugenia J. Pickett, now Mrs. Eugenia P. Cox, Kerrville, Tex.
Florence S. Cushing, now Mrs. Florence C. Marshall, Lowell, Mass.
Julianne Ciejka, Stamford, Conn., to Robert Weiner, Miami, Fla.

New Student Members

Columbia University

Lynne Blaugrund
Rosann Borinstein
Donald Wagner
Carol Meinhold

Duke University

Jerome R. Eatman

Medical College of Virginia

Bruce B. Snyder

Stanford

William M. Smith

University of Pennsylvania

Esther G. Valy

University of Southern California

Mary Edith Bennett
Louis C. Doke
Mrs. Muriel B. Jackson
Frances L. Patton
Anne Smith
Sarah D. Cali
Martin S. Garfinkel
Margaret Louise Murphy
Myrtle J. Reid

Bound Symposium Available

The Symposium on Physiology (Physiology of the Heart and Circulation and Its Clinical Application in Physical Medicine), which was printed in the November and December issues of the REVIEW, will be available in bound, booklet form within the next few weeks. The price will be $1.00 per copy, and copies may be ordered from the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

The material for this symposium, which was coordinated by Harry D. Bouman, M.D., Professor of Physical Medicine, University of Wisconsin, contains many observations and results from original work which is not available in any other form. The information was selected and presented with the physical therapist in mind, and has been compiled in order to assist the reader to understand better the physiological principles underlying effective patient treatment. The symposium was originally presented at the 1950 conference of the American Physical Therapy Association.

General News

Richard Kovacs, M.D.

Dr. Richard Kovacs died on December 29, 1950, after a long illness. Dr. Kovacs was Clinical Professor of Physical Medicine at the New York Polyclinic Medical School and Hospital. He was Secretary of the Congress of Physical Medicine and a member of the editorial board of the Archives of Physical Medicine.

Dr. Kovacs worked unceasingly and enthusiastically for the development of physical medicine. He attended many American Physical Therapy Association conferences and was actively interested in helping the Association attain its goals. Physical therapists have long used his excellent textbook, "Light Therapy and Electrotherapy."

Dr. Kovacs will be missed personally, and professionally, by his host of friends.

World Confederation for Physical Therapy

Dates: September 7th and 8th, 1951

Place: Copenhagen, Denmark

A letter has been received from Miss Jungerson, President of the Danish Society, saying that they are proud and happy that Denmark has been chosen as the birthplace for the World Confederation. Information about accommodations on the Stockholm, sailing for Copenhagen on August 26, 1951, and arriving September 2nd, may be obtained by writing to the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y. Arrangements for housing in both Copenhagen and Stockholm are being made. You can be assured of accommodations. Housing and registration forms will be available in April.

5th World Congress

International Society for the Welfare of Cripples

Dates: September 9th to 14th, 1951

Place: Stockholm, Sweden

The first invitations to the Congress have been distributed. Further information will be forthcoming. Physical therapists throughout the world are invited to attend. Information about the program will appear in the REVIEW and/or may be obtained from the central offices of the International Society, 54 East 64 Street, New York 21, N. Y., or from the Secretariat of the Congress, Justas Backe, 1, Stockholm C, Sweden.

2nd International Polio Conference

Time: September 2nd to 7th, 1951

Place: Copenhagen, Denmark

Information about the program will appear in the REVIEW or may be obtained from the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y. Physical therapists throughout the world are invited to attend.

Physical Rehabilitation Methods Course Offered

An "Advanced Course in Physical Rehabilitation Methods" for physical therapists is offered by New York University-Bellevue Medical Center, in conjunction with New York University School of Education, from April 9th through May 4th, 1951. (This will be the last course before the summer.) Further details concerning the course may be obtained from Miss Edith Buchwald, Director for Rehabilitation Courses for Physical Therapists, Institute of Physical Medicine and Rehabilitation, 400 East 34 Street (corner, First Avenue), New York City.

UNESCO Book Coupon Plan for Obtaining "Physical Therapy Review"

The PHYSICAL THERAPY REVIEW offices have been informed that foreign orders for subscriptions to the REVIEW, or for single copies, may be placed through the UNESCO Book Coupon Plan. The Plan was established by the United Nations Educational, Scientific, and Cultural Organization to enable individuals and institutions in certain foreign countries to purchase American books and periodicals despite the dollar shortage. (The American Booksellers Association, Inc., has been designated by the United States State Department to handle the Plan in this country.)

UNESCO Book Coupons may be obtained at the Central Distributing Centers in all participating countries. (See list of Distribution Centers below.) Coupons are purchased in the currency of the participating country, thus by-passing the prohibitive dollar exchange. These coupons may be sent directly to the *American Booksellers Association, Inc., 724 Fifth Avenue, New York 19, N. Y.*, by the individual or by his bookstore. (The foreign subscription price per year is $6.75 for the REVIEW, which is published by the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.)

DISTRIBUTION CENTERS

Czechoslovakia—Orbis Co., Stalinova 46, Prague XII
Egypt—Administration of General Culture, Ministry of Education, Cairo
France—Direction des Bibliotheques de France, 55 rue St. Dominique, Paris 7e
India—Ministry of National Education, Government of India, New Delhi
United Kingdom—UNESCO Book Coupons, c/o Book Tokens, Ltd., 28 Little Russell Street, London, England
Israel—Dr. G. J. Ehrlich, Import Licensing Office, Ministry of Education and Culture, Hakirya
Germany (Bundesrepublick)—Notgeminschaft der deutschen Wissenschaft, Buechelstrasse 55, Bad Godesberg
Iran—The President of the Persian National Commission for UNESCO, Avenue du Musee, Teheran
South Africa—The Department of Education, Arts, and Science, New Standard Bank Buildings, Pretoria
Italy—Italian National Commission for UNESCO, Villa Massimo, Largo di via Villa Massimo, 2, Roma
Burma—The Secretary, Provisional National Commission, Secretariat Buildings, Rangoon
Indonesia—The Ministry of Education and Culture, Djalan Tijlatjap 4, Djakarta
Thailand—Thailand National Commission for UNESCO, c/o Ministry of Education, Bangkok
Hungary—Ibusz Company, Akademia-utca 10, Budapest V

• The Rehabilitation Center of San Francisco, Inc., has changed its name to the May T. Morrison Center for Rehabilitation. Although the Center is a nonprofit, privately operated organization, its former name frequently led the public to confuse it with municipal or state agencies. The new name is in recognition of supplementary funds given by the May T. Morrison Trust Estate, recently, for the purchase of the Center's building.

• Five weeks are required to make an address change for the delivery of the PHYSICAL THERAPY REVIEW. Please notify us in advance if you are moving, giving your old and new addresses. This will insure uninterrupted service in the arrival of your journal.

Trip to Europe, *continued from p. 51*

coal, and piled high with boxes, chugged their way along the blue waters.

On to Copenhagen by a Royal Dutch Airlines plane, to the city of spires and blue water, the city of laughter and gaiety, the city of a million population with half a million bicycles! I saw the Polio Institute and the very old Community Hospital and talked with social workers there about socialized medicine and the care of crippled children and old people. From the view I had, it looked as if the Danes were doing some very fine work in their handling of social and economic problems.

Dr. Brandt took me to the National Museum and we saw old weapons from the Stone Age and models of burial mounds. In the evening we had dinner with Dr. and Mrs. Skinhoj. Dr. Skinhoj has perfected a new muscle-stimulation machine called a "myotensor," which is being used all over Scandinavia.

My memories of Copenhagen are of smiles and handshakes, open-faced sandwiches eaten outdoors under spreading trees, ballet and pantomime and lighted fountains in the Tivoli, bicycles, polished stone weapons, and a great friendliness toward all visitors.

In Sweden I met Karen Nystrom, head of the physical therapists there, and Elsa Robertson who has a private office for physical therapy. Miss Robertson and I visited several hospitals and then went in a government car to a small home for cerebral palsied children. The program for the cerebral palsied child has just gotten under way in most of the northern countries, as their populations are scattered and they feel that they do not have the incidence of cerebral palsy which we claim to have. They are most interested in the work we are doing and copied many of the pieces of equipment of which I had pictures.

There was a wonderful one-day flight from Stockholm to the Island of Gotland and the medieval city of Visby, the ancient seat of the Hanseatic League and center of the old trade routes. Two miles of stone walls, twelve to fifteen feet thick, surround the city, surmounted by ancient watch towers and remains of catapults for defense against enemies. The calm blue Baltic was always in the background, looking to me like a huge Lake Tahoe, and not like the fierce turbulence that I had anticipated.

From Stockholm to Helsinki, Finland, the beloved and dauntless Suomi, was a flight of only two hours. There I was met by the secretary of the Finnish Physical Therapy Association, Sylvi

Honka, a short blond girl with laughter-lines at the corners of her eyes, despite her memories of years of privation and hunger. We went far out into the country on a bus and had a Finnish bath, a "sauna" complete with a jump into an icy lake. Then we had supper before an open fire, with Sylvi to act as interpreter for a small, eager boy, aged nine, who wanted to know if it was true that California was inhabitated only by Indians and covered with Sequoia trees. I gave him a Lincoln penny and a package of chewing gum and he felt like the most important boy in Finland.

We saw the beautiful new Children's Hospital and Children's Castle in Helsinki, a monument to the foresight of a government which sold extra rations during the war at huge prices and used the money to build these two tremendous hospitals. All finished in polished birch, with murals both inside and out—they made me deeply ashamed of the old, drab buildings we call children's hospitals.

On Sunday some friends of a student to whom I had a letter took me riding through rural Finland around Helsinki. We spent a long time in the Finnish National Cemetery, rampant with the most beautiful roses I have ever seen, growing beside unending rows of flat, white stones carved with unpronounceable Finnish names. "We want America to know," they said, "that Finland lost sixty thousand men in the last two wars, and Finland is small."

Finland is small and brave and wonderful, a nation of courageous men and women willing to fight and die for their beloved Suomi.

In Oslo, Norway, were the tremendous and breath-taking Viking ships, standing in their own Viking House, ready to be launched upon an ancient sea. There I met Frederikki Noerbeck, secretary of the Norwegian Physical Therapy Association, and Hanna Mossige, who works in the Hospital for Crippled Children in Oslo. Mrs. Mossige had a blond, two-year-old son, who looked like an angel on a Christmas card, with whom she demonstrates "baby exercises."

The Riikshospitalet in Oslo has a wonderful new building for children and their cerebral palsy program is just now being set up. A movement has now been started in Norway by the parents of cerebral palsied children (headed by a fine lawyer named Boysen), who hope to make a survey of the number of crippled children all over the country and work out a program for some central place of treatment. Rural Norway is so scattered and so primitive that such a survey seems almost impossible.

Western Norway is so magnificent that I cannot begin to describe it. Endless fjords, range after range of snow-capped mountains, waterfalls roaring down from the tops of these mountains, and green grass and tiny flowers everywhere. The sturdy people make a bare living on tiny farms, with one cow to a farm. They make cheese, and they dry their precious hay over string fences to prevent it from mildewing in the dampness. It is rugged life, and I was inspired greatly by the fortitude and determination of these people.

In Bergen the ruins of great bomb damage and many signs of privation and suffering were still evident. Alfhild Modahl, a physical therapist at the Children's Hospital in Bergen, told me of the years of occupation during which there was a shortage of food and drinking water in the city. (I wondered how many of us would have maintained that air of staunch independence under similar circumstances.)

Norway is the land of my heart! Its grandeur of scenery, its ancient buildings, its stave churches (each with a cross on one door and Thor's hammer on the other), its Viking ships, its outdoor museums, and its salmon and brown, sweet, goat cheese—all fill me with a nostalgia that I cannot explain. I will go back to Norway some day, I am sure, and I hope it will be soon.

My trip ended with a few days in Edinburgh, Scotland, where I attended some performances of the Edinburgh Music Festival, and heard the bagpipes play at noon on Princess Street. A day in Belfast, Ireland, with my cousins, gave me a quick view of Northern Ireland—truly emerald in color—burdened with the same scarcities I had found in England and Scotland.

Now I have spent my old-age security, but I have friends in countries across the ocean; I have memories that flood my mind and heart when I hear these countries mentioned; I have widened my horizons and sympathies. I think I will begin to save my salary once more. I will save as much as I can. For my old age? Of course not. . . . for another trip.

—MARGERY MCCULLOUGH

(Miss McCullough was recently appointed Coordinator and Director of the treatment center of the Cerebral Palsy Association of Southern New York at Binghamton, N. Y.)

Personnel Policies for Qualified Physical Therapists

Physical therapy is a medical service administered by physical therapists only upon medical prescription. Specific professional preparation is required to enable the physical therapist to carry out the many treatment procedures and tests prescribed by the physician. The Council on Medical Education and Hospitals of the American Medical Association, in recognition of this fact, has established educational standards for physical therapists, and it approves schools which meet those standards. An employer may be assured that a graduate of a school approved by the Council, or a member of the American Physical Therapy Association, or a senior registrant of the American Registry of Physical Therapists, is a qualified physical therapist.

The physical therapists, in common with other professional workers, should know when accepting employment what can reasonably be expected in salary and increments according to capabilities and length of service, as well as what opportunities there are for professional growth. Conversely, the employer must be assured that the prospective physical therapist has the necessary knowledge, experience, skills, and ethics to carry out the required professional work in any given position—staff, supervisory, or teaching.

The American Physical Therapy Association is aware of the variables in living costs in different sections of the country; in establishing policies for any given area, these must be considered, whether high or low. Base pay, however, must be sufficient for the worker to maintain himself in the community without the necessity of assuming additional work.

Physical therapy is a service for which a fee is usually charged. The department thus becomes self-sustaining and may be income-producing. Most hospital insurance plans provide payment for physical therapy services. Workmen's compensation; official agencies, such as Crippled Children's Services, and Offices of Vocational Rehabilitation; private agencies like the National Foundation for Infantile Paralysis, and state and local societies for crippled children and adults—all pay for physical therapy services for patients under their sponsorship.

The American Physical Therapy Association, in response to requests and in recognition of its responsibilities to members, as well as to employers of physical therapists, presents the following recommendations:

Salary

Staff: The beginning base pay for a staff physical therapist should be no less than $2,760 for a forty-hour week. A plan for annual increments, until maximum for the staff classification has been reached, should be established. Although it is not uncommon to have a range of $400 to $600 in a classification, it is felt that the employer should work this out according to the size of the department, and the policies of the institution or employing agency for all professional personnel. It is known that the following salaries are in effect:

	Staff	
Voluntary Agencies	$2,760 –	$3,500
Federal Civil Service	3,100 –	4,575
	2nd Lts.	*1st Lts.*
U. S. Army and Air Force	3,169 –	3,496.56
	Supervisory	
Voluntary Agencies	$3,600 –	$5,000
Federal Civil Service	4,600 –	5,350
	Captains	*Majors*
U. S. Army and Air Force	4,662 –	5,601

Supervisory, Teaching, Special: Other classifications depend upon the size of the department and the demands for employment of those with additional qualifications for work in specialized fields. The minimum salary for those with additional responsibilities, whether it be in teaching, supervising, or in specialized work, should begin above the maximum staff salary and be commensurate with salaries of other professional personnel with similar qualifications and responsibilities.

VACATIONS

A *minimum* of two weeks' vacation, with pay, with provision for increase in time according to length of service and responsibilities. Physical therapy is hard work and a generous vacation policy will prove to be good economics.

PROFESSIONAL CONFERENCES

National professional conferences, such as the one held annually by the American Physical Therapy Association, are in effect refresher courses and do provide an opportunity for professional growth of the staff. It would seem advisable that at least one member of the staff attend a conference without loss of vacation time or salary. Some hospitals have arranged to send a supervisor or selected staff member to the conference with all expenses paid, and others have given some financial assistance. Frequently these expenses are assumed by one of the voluntary groups, such as a women's board.

The physical therapist attending the conference would be expected to make a report to the medical staff and to share new knowledge with other members of the physical therapy staff.

HOSPITAL INSURANCE, SICK LEAVE, SOCIAL SECURITY

This is not a problem peculiar to physical therapists and it is generally recognized that there should be provision for adequate coverage of these items for all personnel.

NONPROFESSIONAL ASSISTANTS

The employer, to obtain maximum professional physical therapy services, should consider the employment of nonprofessional assistants in the department, such as a clerk and an attendant. With the existing shortage of qualified physical therapists, it is particularly important that the physical therapist be relieved of clerical and maintenance duties and thus have time to give more professional service to the patients.

CONCLUSION

The Association considers it advisable that salaries should be set up on regional and local levels. Salaries should be based on a forty-hour work week. Annual increments, sick-leave, time to attend professional conferences, vacation time, hospitalization, and retirement are considered to be essential considerations in personnel policies.

Physical therapy, as a medical service, requires exacting preparation to administer prescribed treatment successfully. The American Physical Therapy Association presents recommendations for personnel policies in order to fulfill its responsibilities to physical therapists and employing agencies. The Association recognizes that physical therapists, together with others "who serve the sick have opportunities for service and satisfaction beyond those available to any other of the employed groups."*

*Excerpt from a resolution of policy with respect to relationships between hospitals and employees, American Hospital Association.

Subscription Rate and Change of Address

Yearly subscriptions to THE PHYSICAL THERAPY REVIEW are $6.00 in the United States; $6.75 outside the United States. Single copies, 75c. Send your subscription to the AMERICAN PHYSICAL THERAPY ASSOCIATION, 1790 Broadway, New York 19, New York. Changes in address should reach this office five weeks before such changes become effective, to assure uninterrupted delivery. Both the old and new address must be given.

Index to Current Literature

Arthritis

Rheumatoid Arthritis, Part I. G. H. Fish, R. P. Howard, and K. Fay. The Canadian Medical Association Journal, October 1950.

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Abstracts

Rheumatoid Spondylitis (Strumpell-Marie Arthritis): Orthopedic Management

Theodore A. Potter, M.D., Boston. In AMERICAN PRACTITIONER, 1:11: 1129, November 1950.

Pain in the low-back and sacroiliac areas causes lumbar muscle spasm so that the normal lordosis is obliterated. The flat low back is an early sign of spondylitis.

The cervical spine may become flexed or extended, depending on the patient's posture. If he has been active, that is, on his feet during the flexion phase of the dorsal spine, he will gradually compensate by hyperextending his cervical spine. If, on the other hand, he remains in a chair or bed, propped up with pillows, the head will gradually drop forward and many times become ankylosed there. Most cases acquire rotation to one side or another, usually a left-tilted head in a right-handed individual. In one such case the chin and left cheek rested on the chest wall and was rigidly ankylosed there.

Hips and shoulders are commonly involved and may become ankylosed. Faulty body mechanics is the predisposing factor in the production of these joint changes. Added stress and strain seems to be the inciting cause, so that they break down, wear out, and lose motion.

Picture a patient with a rigid, flexed spine. If he stays this way he cannot see where he's going, so to compensate for lost spinal motion he flexes hips and knees in walking and standing. When this attitude is maintained for a period of years, flexion deformity of hips and knees takes place. No joint improperly aligned will long bear such usage, and it will break down. Hips develop deformities in flexion and adduction, the former due to bad posture and spasm of the iliopsoas, the latter due to adductor spasm, and, later, contraction. The shoulders become fixed to the chest and lose the range of motion in abduction and external rotation. Upper spinal muscle spasm clamps the arms to the sides, contractures later set in, and the anterior muscles, particularly the pectorals, become shortened; all this then leads also to restricted shoulder motion. We have seen several cases of complete rigidity from toe tips to eyeballs.

The treatment of rheumatoid spondylitis is almost wholly an orthopedic problem. Its aim is two-fold: (1) arresting the inflammation, and (2) prevention of spinal and chest deformity, and subsequent lower extremity and shoulder deformities. Following is the typical way we handle an early case coming to us for the first time:

(a) The patient is hospitalized.

(b) A firm bed is provided; twenty-four-hour bed rest is advised.

(c) X rays, laboratory work, and posture photographs are taken initially.

(d) A resting, plaster back-shell is made for the patient. He is instructed to use it at all times. The shell is used until spasm and pain have subsided—usually about ten days.

(e) Hot fomentations to the spine and hips are given three times daily. Moist heat quiets the spasm better than dry heat.

(f) Lying postural exercises and gentle back massage are given two to three times daily. Initial exercises are performed to increase chest expansion, gain control of abdominal muscles, and strengthen spinal extensors.

(g) Roentgen therapy is started the first or second day after entry.

Spinal braces have been discarded by us, since we do not feel they do the job of protection or correction adequately.

In the older patients, with demonstrable calcification by roentgen ray and what appears to be clinical rigidity with flexion deformity, the same serial jacket program is carried out. In spite of apparent ankylosis there always are one or more areas that are slightly movable, and through these, corrections can be made. The cervicodorsal, dorsolumbar junctions are the two usual sites where slow stretching can take place with the repeated corrective jackets. Head traction and a special adjustable chin post attached to the jackets help to correct and maintain flexed cervical spines.

Posture—Its Role in Obstetrics and Gynecology

Leonard B. Greentree, M.D., Columbus. In OHIO STATE MEDICAL JOURNAL, 46:11:1066, November 1950.

So far, very little in medical literature has appeared concerning the important role of good posture in obstetrics and in gynecology. Obstetricians have begun to be aware of this importance, and so have gynecologists; but so far the most common procedure has been to turn over to orthopedic surgeons the few patients in most obvious need of help, and do little for the others. The writer submits that more stress on posture by the obstetrician-gynecologist for practically *all* patients will result in better health during and after pregnancy, do much to improve the individual patient's figure (an important consideration to many women in childbearing), and be of beneficial effect for many gynecological patients, part of whose difficulties, at least, may be faulty posture.

Applying the principles of normal body mechanics can be a useful adjunct to other measures employed in obstetrics and gynecology. Good posture often notably improves the health and figure of the patient. This paper has attempted to show:

(1) the standards of normal posture

(2) methods of making postural examinations

(3) the importance of an orthopedic consultation when unusual postural defects are present

(4) procedures whereby good posture is maintained and faulty posture is improved

Recent Concepts of Rheumatoid Arthritis

Oliver Abel, Jr., M.D., St. Louis. In THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION, 47:11: 805, November 1950.

Rheumatoid arthritis is a general disease and affects the individual as a whole, not just the joints. Necessarily, treatment must be directed to the whole individual, both his physical and mental states. The physician should have a clear understanding with the patient in regard to his condition, the length of treatment, and, as near as possible, his ultimate outlook. Measures should be taken so that changes in occupations can be made, changes that are adaptable to the ability of the individual.

Proper rest to the individual as a whole and to the joints involved, and attention to prevention of deformities and maintenance of function, are of utmost importance. Definite rest periods and definite periods of exercising and activity should be prescribed, remembering that a happy medium must be sought between no general activities and too much activity. Individual joints must be exercised: first, passively, as soon as

the acute inflammation has subsided, and then actively for certain increasing periods each day. The amount of pain complained of and its duration, and whether the pain occurs with increased severity, should be the guides to the length of time of the exercises. Massage of muscles between joints associated with the exercises should be given.

In regard to physical therapy, complicated and expensive apparatus is never necessary. Local heat in the form of light bulbs and pads will suffice. One of the best physical therapy measures at home is the hot tub soak. The individual, when able, should be placed in the tub and the time in the tub and the temperature increased as tolerated. While in the tub, the individual should be encouraged to move his joints. Deformities result when the parts are in flexion and this should be avoided. A proper bed is flat with a board under the mattress to prevent sagging so that the patient may rest in correct posture with joints extended.

It is easier to prevent than to correct deformities. When flexion deformities have occurred, then the problem is chiefly orthopedic and it is not within the scope of this paper to go into orthopedic problems related to deformities.

Creatine Excretion in Acute Poliomyelitis: Preliminary Report

George J. Boines, M.D., and James C. Kakavas, Ph.D. In DELAWARE STATE MEDICAL JOURNAL, 22:10: 304, October 1950.

It appears from the preliminary data that daily creatinuria evaluations in twenty-four-hour specimens of urine, done from the onset of acute poliomyelitis, can be of value in determining the cessation of muscle pathology, rigidity, atrophy, and/or the reestablishment of normal muscle nutrition and metabolism. Therefore, active therapy directed toward the correction of the pathologic physiology in the muscles should be continued, perhaps, until creatinuria diminishes or disappears.

Electrophrenic Respiration

*In THE LANCET, No. 6633, p. 473, October 14, 1950.

A vast public still is fascinated by the ingenious "iron lung" devised in 1929 by Drinker and Shaw for "prolonged administration of artificial respiration." This apparatus is alternately the hope and the despair of the clinician called on to treat bulbar or bulbospinal poliomyelitis with respiratory failure. He can rarely prophesy whether the treatment will be: (1) a brilliant success, tiding the patient over a difficult period until use of the respiratory muscles is restored to him, (2) a comparative failure, with a hopelessly paralyzed patient depending on the respirator for continued existence, or (3) a complete failure, giving little or no relief because of an obstructed airway or concomitant paralysis of the respiratory center. Many of these cases are complicated by pharyngeal or laryngeal paralysis, and the consequent pooling of mucus leads to obstruction of the respiratory passages. Under these conditions the violent inspirations induced by the respirator give rise to a negative pressure in the bronchioles and alveoli, into which plasma and red cells are sucked, producing hemorrhagic pulmonary edema. To ward off this danger, respirator treatment may be combined with postural drainage and suction.

A new and apparently effective method of meeting this difficulty is now described by a Boston team under the leadership of Sarnoff. Patients with irregular, shallow, spontaneous respiration, who failed to adapt their breathing to the respirator's rhythm, have been submitted to this stimulation for periods varying from eight hours to several days. It seems that, even after a few hours, spontaneous respiration may be greatly improved, but in the worst cases stimulation may have to be continued for some time before the respiratory center has sufficiently recovered.

*No author's name given.

Treatment of Rheumatoid Arthritis by the General Practitioner

Herman H. Tillis, M.D., Newark, N. J. In THE JOURNAL OF THE MEDICAL SOCIETY OF NEW JERSEY, 47: 10:475, October 1950.

In evaluating any method for the treatment of arthritis, it is desirable to follow the criteria established by Steinbrocker et al. for the American Rheumatism Association. These criteria include functional, objective, and laboratory changes.

Physical therapy is important and can be accomplished simply, at home, without expensive gadgets. Heat to an affected part will be helpful and can be maintained by a hot water bag, electric pad, or a radiant lamp. Often, paraffin baths or painting with paraffin will help soothe a painful joint. This is comparatively inexpensive. Some member of the family can be taught massage, which should be applied lightly, after heat, as a preliminary to active motion. Massage often will prevent massive muscle atrophy.

Short-wave diathermy should not be used during the acute phase of rheumatoid arthritis. This modality increases osteoporosis and does more damage than good. It has some place in the treatment of more advanced and quiescent phases of the disease. Ultraviolet light has questionable value. (One practitioner told me he gives it to all his patients, because it makes them look "healthy.") Galvanic current and iontophoresis, with various medicaments such as histamine, are soothing and helpful, as is sinusoidal stimulation of muscles. But these highly specialized and expensive technics are often unnecessary. Occupational therapy may be a great aid in awakening a patient's interest in exercising important groups of muscles.

Measures of Probable Value—Fever therapy induced by typhoid vaccine intravenously, foreign protein, or fever machines are still being used to stimulate a severe bodily reaction. Fever therapy has its dangers. Thus, a word of caution.

Physical Medicine and Rehabilitation in Medical Education

Howard A. Rusk, M.D., New York. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 144:9:730, October 28, 1950.

Because of the increasing knowledge of electronics and biophysics and a more comprehensive understanding of the biologic and biomechanical principles involved in the pathological processes of the disabled and chronically ill, this specialty has made more rapid strides in the past decade than in all time heretofore.

Medical research and its clinical application have made the solution of many of these previously complicated problems relatively simple. The stockpiling of knowledge gained from research has also piled up the years of life. With these advances the pendulum has swung, and today medicine's greatest problem is chronic disease and disability in an aging population.

It is only possible to "tool up" for production by education—educa-

tion of the public to know what they have a right to expect, education of the physicians certified in other specialties to recognize the knowledge and technics that are currently available, education of the general practitioner to know what type of patient should be referred for specialized care, and, last but equally important, education of the specialist in physical medicine and rehabilitation.

In the undergraduate, graduate, and postgraduate teaching in physical medicine and rehabilitation it cannot be emphasized too strongly that the underlying fundamental is the teaching of good medicine. This is difficult, for the specialist in the field of physical medicine and rehabilitation must have at least a basic understanding of medical, surgical, orthopedic, neurological, and psychiatric problems, both diagnostic and therapeutic. One cannot accept without question the diagnosis, evaluation, and therapeutic prescriptions of one's colleagues without a reevaluation, if one is to accept the responsibilities of specialized care. The surgeon does not perform an operation to correct a condition diagnosed by the internist without himself examining the patient. This is true throughout all of medicine where good medicine is practiced. The specialist in physical medicine and rehabilitation must stand for the same firm principles of good practice.

When the physician is capable of standing his ground in medicine generally and can add to this the special technics and modalities pertinent to his particular field, he is then a specialist in physical medicine and rehabilitation not only in name but in reality. He is at the threshold of great new opportunities; the door is ajar, but it must be opened wide. His is a great responsibility, for he holds the key to the solution of medicine's major problem, chronic disease and disability in an aging population.

The Public Health Nurse and the Poliomyelitis Patient

Mary M. Klaes, R.N., B.S., Dover, Del. In DELAWARE STATE MEDICAL JOURNAL, 22:9:257, September 1950.

Public health nurses visit the homes of poliomyelitis patients for various reasons, sometimes even before the diagnosis has been made. When the diagnosis has been made, the public health nurse helps the family of the patient to understand the implications of the disease so that they will not be panic stricken.

The public health nurse must assist the parents to understand that the patient should be encouraged to develop independence. She realizes that parents, in their love and concern, may overprotect the patient and thus prevent or retard the development of self-reliance. He should be given a share of the household chores within the limits of his ability to carry them out. This gives him a sense of his own worth and develops inner security which will later enable him to take advantage of the splendid facilities offered by the Vocational Rehabilitation Services for the Handicapped. There is a useful place in the world for everyone, and to be really happy one must be useful.

The Risk of Poliomyelitis after Tonsillectomy

Gaylord W. Anderson, M.D., Dr. P.H.; Genevieve Anderson, B.S., M.P.H.; Audrey E. Skaar, B.S., and Franziska Sandler, M.S., Minneapolis. In THE ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY, 59:3: 602, September 1950.

The existence of a relationship between poliomyelitis and tonsillectomy during the month preceding onset was first suggested by Sheppard in 1911 and clearly shown by Aycock and Luther in 1929. Since that time, numerous investigators have added to the growing literature on this topic, placing on record many instances of severe involvement that occurred within a few weeks after removal of tonsils. Undoubtedly many cases and even groups of cases remain unrecorded. Out of the many reports has come a growing realization that poliomyelitis occurring during the first month after tonsillectomy is more apt to be of the bulbar type than is infection occurring under other circumstances.

During the 1946 outbreak of poliomyelitis in Minnesota, 21 cases occurred within one month following tonsillectomy. Details of 19 of these are presented. Five (3 of the 19) were fatal.

Twelve of the 19 (63.2%) were bulbar, as contrasted with only 4 bulbar out of 18 cases (22.2%) who had tonsils removed in the second and third months preceding onset.

There was a concentration of bulbar cases whose onset after operation was within the apparent usual range of incubation periods.

The risk of developing poliomyelitis was at least three times as great among those undergoing tonsillectomy as among a comparable group not undergoing this operation and the risk of bulbar infection was eleven times as great.

Physical Medicine in the Treatment of Shoulder Disabilities

K. G. Hansson, M.D., New York. In ARCHIVES OF PHYSICAL MEDICINE, 31:11:696, November 1950.

The commoner shoulder disabilities may be considered in three groups:

(a) When pain is the cardinal symptom
(b) When the main difficulty is weakness of the shoulder
(c) When the main factor is stiffness of the joint

Pain—I. In the first group, the pain is due to peritendonitis, which can be treated conservatively by the use of an ice bag and sling in the acute stage, or the application of heat and exercise in the chronic stage.

II. Radiculitis is a nerve pain that may reach from the neck down to the hand. Symptoms of pain in the occipital region over the scapula, shoulder, forearm, or hand generally indicate different levels of root pressure. Poor posture or osteoarthritis, or a combination of the two, usually is the cause.

III. The scalenus anticus syndrome includes pain about the shoulder and upper extremity following the radial, ulnar, and medial nerves. Often there are vascular complaints and vasomotor symptoms, and these usually indicate pressure of the brachial vessels or brachial plexus passing over the bony ridge or the thorax. Treatment consists of relieving this pressure.

Weakness—I. Poliomyelitis often is followed by residual weakness of the deltoid muscle. It is most important to support the weak muscle and maintain the tone and blood supply of the same muscle.

II. Serratus magnus paralysis of the long thoracic nerve will produce a typical winged shoulder. Treatment here, also, is support of the weakened muscle and proper exercise to regain muscular strength.

III. Erb's palsy, clinically, produces flaccid paralysis of the upper extremity, but later deformity develops as a result of contractures of unopposed muscles. With this in view, splintage and conservative treatment over a long period of time are important.

Stiffness—I. Rheumatoid arthritis of the shoulder joint should be treated the same as arthritis in any other part of the body.

II. Frozen shoulder may follow

any pain of the upper extremity and often results in retrogression of function when shoulder joint movement is substituted by shoulder girdle movement. Treatment should be based on retraining the patient in the proper reflex pattern.

III. Of fractures about the shoulder, impacted fractures of the cervical neck can be placed under treatment in the second day. It is most important, however, to emphasize the external rotation which often is lost by the position of the arm in a sling. Without external rotation, complete abduction of the shoulder is impossible.

If more specific diagnosis of shoulder disabilities is obtained, more specific treatment will follow, with better results for the patient.

Treatment of Acute Poliomyelitis: With Emphasis on Muscle Relaxation and Nutrition, Preliminary Report

George J. Boines, M.D., Wilmington, Del. In DELAWARE STATE MEDICAL JOURNAL, 22:9:270, September 1950.

It is proposed that poliomyelitis is essentially a medical problem. Competent and adequate medical management is a prerequisite to obtain results therapeutically profitable to the patient.

Curare (d-tubocurarine chloride solution, "Intocostrin," E. R. Squibb & Sons, 1 cc. equals 3 mgs. or 20 units) is used as the main modality in relaxing muscles. It is administered as soon as the diagnosis is made. The initial dose is 0.45 units per kilo body weight, given at 8:00 a.m., 1:00 p.m., and 1:00 a.m. If no unusual reactions are noted, the dose is raised to 0.9 units per kilo body weight on the following day. Within one hour after the curare is injected, the physical therapists do the muscle stretching and muscle re-education and instruct the patient in how to carry out exercises during the day. The technics we employ are those described by Ransahoff, and the exercises described and illustrated by Billig and Loewendahl.

A total of 276 patients representing 35 bulbar, 112 paralytic, and 129 nonparalytic, were treated by the method outlined in this report. That the procedure of management was adequate and therapeutically profitable to most of the patients is manifested in the results: (1) fully recovered—222, (2) some muscle atrophy, but no handicap—15, (3) ambulatory, with some residual handicapping paralysis—30, (4) some handicapping paralysis, but able to walk with braces—4, (5) handicapping paralysis, but walk with braces and sticks—2, (6) 3 died. In Groups Three, Four and Five more improvement is expected, as in our experience we have noted that improvement continues for four years.

The Mobilization of Natural Healing in Painful Feet

H. C. Knellwolf, Zurich, Switzerland. In DER HEILMASSEUR PHYSIOPRACTIKER, 113:12, August 1950. Translated by Esther Valy, Student Physical Therapist, University of Pennsylvania.

A gift from nature to mankind is his ability to walk upright, and to enjoy life and all its beauties from a higher level than animals can. This is how it was in earlier times, but how is it today?

Squeezed into the coverings for our feet, we try to avoid any amount of use of them. We get tired quickly and whenever possible we use an auto, a streetcar, or some other technical wonder of our age. Civilized man is becoming tired of walking, and he suffers from bunions, corns, flat feet, and other maladies.

If man wants to stay healthy, he needs exercise, like a refreshing hike through the forest. But he who has sore feet abstains from any exercise; his arteries harden; he becomes fat and old; and because of this he is very depressed.

He may try to overcome this condition with all available means. He buys supporters and other devices for his arches, but there is no final improvement. The cause of this failure lies in the wrong treatment, treatment in which all the physiological conditions are completely ignored!

The first mistake is made in an attempt to bring immediate relief of pain by putting support under the arch and the sole of the foot's skeleton. This is only a temporary relief for the patient. Eventually the constant pressure causes atrophy of the involved muscles and loosening of the ligaments, and now the patient can walk only with strong support.

The functional use of the feet should not be hindered. The orthopedist is interested only in the dislocation, but the actual cause lies in the weakness of the ligaments and the muscles, which can be helped by strengthening the muscles by methods known to physical medicine. Artificial support of the feet should be fought against.

The Care of Hand Injuries

In THE JOURNAL OF THE KANSAS MEDICAL SOCIETY, 51:10:474, October 1950.

The first-aid care of wounds of the hand is directed fundamentally at protection. It should provide protection from infection, from added injury, and from future disability and deformity. The best first-aid management consists in the application of a sterile protective dressing, a firm compression bandage, and immobilization by splinting in the position of function. No attempt should be made to examine, cleanse, or treat the wound until operating room facilities are available.

Following healing of skin and soft tissues and firm union of bony structures, as much function as possible should be restored by directed, active use of the hand, therapeutic exercises, and occupational therapy.

Reconstructive surgery often is required after such injuries to permit maximum restoration of function. Such reconstruction will be less extensive and less formidable if the early management of the injury is judiciously and carefully carried out.

The Scope of Physical Therapy in the Crippled Children's Service

Mary L. McCarthy, B.S., and Jean L. Wiley, B.S., Dover, Del. In DELAWARE STATE MEDICAL JOURNAL, 22:9:256, September 1950.

Ever since the physical therapy program was created in 1947 under the Crippled Children's Service, it was indicated that additional staff would be necessary to carry out the functions of the program. With the employment of a second physical therapist during the year, we are a step closer to the realization of the aim of increasing physical therapy services and facilities for the crippled child in Delaware.

Probably one of the most important functions of the physical therapist is to give direct service to patients for whom physical therapy has been prescribed by the orthopedist. The physical therapist may be instructed to test and grade muscle power, to provide muscle training, to evaluate functional activities, to supervise corrective exercises, to perform massage, to assist in planning for the construction of equipment for home use, to apply various forms of heat and to explain the orthopedic recommendations and the objectives of the treatment.

Treatment of Peripheral Arteriosclerosis Obliterans: Physical Agents

Albert Fields, M.D., Los Angeles. In AMERICAN PRACTITIONER, 1:11: 1156, November 1950.

In the attempt to relieve the symptoms of impaired peripheral circulation there is an increasing tendency towards indiscriminate use of physical therapy. Furthermore, the impressively glittering and "complicated" apparatus of physical therapy has provided a ready means of exploitation of the desperate afflicted. In this paper an attempt is made to present some of the indications for various physical modalities. Limitations, contraindications, and dangers are pointed out.

Walking. Walking is usually contraindicated in the presence of severe pain during rest, discoloration of sudden onset, rapid increase in discoloration, and in the presence of gangrene or ulceration. According to Wright, the optimum rest position for the extremities is three to six inches below the heart. In absence of contraindications the patient should be encouraged to walk slowly, within limits of tolerance—until pain develops. Then, after rest and calf massage, walking can be resumed. This can be repeated for a total of thirty minutes, three times daily.

Postural Exercises (Buerger). It has not been proved that these exercises do increase the blood flow. However, if these exercises do not make too great demands on the individual, they are of value by reminding him that he has impaired circulation, and must take better care of his extremities. The Allen exercises are simpler but no more effective.

Sanders Bed. Best results were obtained with room temperature of 85 degrees F. and elevation of the head of the bed so that the feet are just a few inches below the level of the heart. It was found advisable to have the feet become just blanched when elevated and cyanosed when in the dependent position.

Temperature of toes can be increased 1 to 4 degrees C. The most striking effect was relief of pain in most patients, even in presence of gangrene and ulceration. However, improved exercise tolerance and eradication of intermittent claudication should not be expected.

"Pavaex." Despite reported good results in occasional cases, "pavaex" is of questionable value and is contraindicated in the presence of gangrene, ulcers, or infections.

Intermittent Venous Occlusion. Probably the popularity of this therapy is related to its availability, simplicity, and the fact that the patient can run the machine by himself at home. Its value has not been verified by controlled clinical experiments and in the future it will be little used.

Massage. Light massage (effleurage) for fifteen minutes, twice daily, has a beneficial action by producing superficial capiliary dilatation without increasing metabolism. Deeper massage increases venous return and lymph flow, along with arterial flow, but, if too vigorous, may increase metabolism and further injure already damaged tissues. It is contraindicated in the presence of infection, phlebitis, large ulcers, or gangrene. Massage and gentle, slow, passive stretching or traction also helps to relieve fibrositis and painful muscle spasms. As pain is relieved and muscle strength built up, one can increase active repetitive exercises against heavy resistance and walking within pain limits. Mechanical massagers and vibrators are mentioned only to be condemned.

Contrast Baths. Harpuder and others see no justification for the alternate use of hot and cold.

Whirlpool Baths. It is doubtful that any form of bath can produce a prolonged improvement of circulation. However, as long as the water used is neither too hot nor too cold, the baths are not harmful, and many patients continue with this therapy because they think they are benefited by it.

Environmental Temperature. Obviously, the patient with impaired circulation should not follow any occupation involving exposure to cold. In inclement weather he should wear warm clothing or, better yet, remain indoors.

Direct Heat. Fields believes that it is unsafe to apply heat in any form to extremities with impaired arterial circulation. This includes hot footbaths, hot compresses, hot water bags, infra-red lamps, desert lamps, etc. Even moderate degrees of warmth (92 degrees) may increase local tissue metabolism more than it increases the circulation. Heat is beneficial only when circulation is increased more than the accompanying increased metabolism. With thermostatically controlled sheets and blankets, mild heat can be applied to the whole body for prolonged periods with comfort and safety.

Reflex Heating. This method is much safer than direct heat application to the involved extremity. Increased blood flow and temperature rise indicate a high vasospastic element and/or extensive collateral circulation. Some restrict this therapy only to cases where such a response is obtained.

Diathermy. It is generally inadvisable to use diathermy on a limb with impaired circulation. It is safer to apply diathermy to the lumbar region, thus increasing blood to the lower extremities indirectly.

Summary. (1) Many physical agents now widely used in the treatment of peripheral arteriosclerosis obliterans are of little value in halting the progress of this condition.

(2) In the presence of impaired circulation, physical therapy must be used with caution and constant supervision.

(3) Attempting to relieve symptoms by vigorous use of physical agents probably will aggravate the condition.

(4) There are only a few worthwhile physical therapies—walking within limits of tolerance, light massage, reflex heating, thermoregulated sheets and blankets, and whirlpool baths.

(5) Carbon dioxide baths, iontophoresis, and perhaps intermittent venous occlusion may be of limited value.

Clinical Study of Physostigmine Preparations in the Relief of Muscle Spasm and Pain

Wallace Marshall, M.D., Two Rivers, Wis. In THE JOURNAL-LANCET, 70: 10:391, October 1950.

The present study was undertaken to ascertain what effects, if any, certain preparations of physostigmine in combination with atropine exhibited in their ability to relieve muscle spasm, particularly spasm involving the skeletal (voluntary) muscular system.

Administration of solution containing physostigmine and atropine (Phyatromine) to patients with rheumatoid arthritis and idiopathic myositis is generally followed by prompt relief from stiffness of involved joints and muscles and improvement of articular and muscular function.

Subsequent to relief from muscle spasm, there is a decrease in tenderness of the soft structures about the joint, and, in acute cases, a decrease in swelling.

Relaxation of muscle spasm apparently prevents the development of deformities, and, if deformities have occurred, some patients respond by

reduction of the deformities. The extent of reduction of the deformed joint depends upon the amount of fibrosis and ankylosis which may have occurred.

With decrease of pain and improvement of articular and muscular function, and the recovery of the ability to execute complicated movements of the affected joint, there is an improved mental attitude of the patient, accompanied by improvement of nutrition of patient.

Succeeding injections give the patient more marked and sustained relief than do the primary injections.

Administration of a solution of phyatromine to patients with muscular strains, due to trauma, gives relief from associated skeletal muscle spasm.

There is no evidence that a solution of physostigmine and atropine benefit the arthritis process *per se*. Together, they seem to provide palliative relief by their coaction, permitting the patient to recover the ability to use affected muscles and joints.

Chronic, Convalescent, and Rehabilitation Unit in Peoria, Illinois

In HOSPITAL PROGRESS, 31:11:324, November 1950.

When, on August 15th, the Forest Park Home—St. Francis Hospital Division—was dedicated, the city of Peoria saw the near-completion of a type of health facility which few large cities can match. Among Catholic hospitals, St. Francis is the first to acquire a unit intended for chronic, convalescent, and rehabilitation cases. Rehabilitation service on a limited scale is not unknown in Catholic institutions, but St. Francis Hospital is the first to tackle the problem comprehensively.

Clearly, the unit as originally planned was amply warranted; the addition of a rehabilitation department made the new structure an all-the-more valuable addition to the Peoria health facilities. Peoria was an ideal location for a rehabilitation center. The city is an industrial one, and is the headquarters of some of the largest manufacturing companies in the country—among others, the Caterpillar Tractor Company. Industrial accidents, with their toll in disability, inevitably occur. Support for the rehabilitation center came promptly and wholeheartedly, from plant physicians, as well as others.

The rehabilitation center operated by the Institute of Physical Medicine and Rehabilitation occupies the west wing of the ground floor. When completed, the center will be very well equipped, including a swimming pool of considerable size. It has a separate entrance, contributing to the convenience of caring for ambulatory patients.

Suction-Socket Prosthesis for the Above-Knee Amputee

John H. Aldes, M.D., F.A.C.S., Van Nuys, Calif. In ARCHIVES OF PHYSICAL MEDICINE, 31:11:709, November 1950.

The suction-socket prosthesis is an artificial limb which is held on by a moderate suction created in the closed socket and is so fabricated that it conforms to the anatomic features of the stump, thereby allowing the muscles of the stump to control all physiologic movements of the limb. The only apparent difference between the conventional above-the-knee prosthesis and the suction-socket leg is that the latter eliminates all suspension harness, pelvic belt, and hip control.

In the selection of the group for the initial use of suction socket, one of the factors that had to be considered was the muscle tone, not only of the stump, but of the opposite leg, and the entire body as well. Each applicant was examined by the physical therapist. Gait, posture, and muscle strength were important if we were to evaluate the wearer accurately. Very few of the group selected could be classified as good walkers. Postures were poor, and in about 50 percent of the patients muscle tone of the stump was only fair.

Heavy resistance exercises have proved most beneficial in strengthening not only the stump and the opposite leg but the entire body as well. Many of our suction-socket applicants, who had worn conventional prostheses for several years, had hip contractures, poor quadriceps tone in both thighs, weakness of the opposite knee, and general flabbiness in the abdominal and lower spinal muscles.

Replacement of the conventional leg with a suction-socket prosthesis generally causes imbalance in gait. To overcome this imbalance, the patients are placed on crutches and are given walking exercises to be done in front of mirrors.

Walking instructions should be given gradually, after the suction socket has been fitted.

Summary—(1) A suction-socket prosthesis can be used successfully in about 75 percent of the above-the-knee amputees if the stump is at least ten inches in length below the greater trochanter, is well formed, and has good muscle tone.

(2) The best results with this prosthetic device are obtained with patients between the ages of twenty-one and forty.

(3) The majority of failures with the suction socket are due to poor fitting.

(4) Physical rehabilitation of the amputee is a vital step toward the success of the suction socket.

(5) The advantage of the suction socket over the conventional prosthesis is that it allows a greater freedom of movement; better control of the leg, since it feels like a normal part of the body; and lack of need for pelvic belts, hip controls, and suspenders.

(6) The muscles of the stump hypertrophy and increase their physiologic action with the wearing of a well-fitting suction socket.

(7) Without the wholehearted cooperation of the patient, limb-fitter, physical therapist, and orthopedic surgeon in following through with frequent check-ups during the first year of wear, the suction socket cannot be a success.

Alterations in Serum Protein Levels in Acute Human Poliomyelitis: Rationale for Therapy

Jack Sheldon Chudnoff, M.D., Los Angeles. In CALIFORNIA MEDICINE, 73:5:401, November 1950.

Serial determinations of serum protein levels in acute human poliomyelitis revealed a progressive drop of the serum albumin level, which bore close relationship to the amount of clinical paralysis. This loss of serum albumin began about the third day after onset of clinical symptoms and progressed to the tenth day or longer. The more severe the clinical involvement, the less was the tendency to spontaneous correction of the albumin deficiency. Declining serum albumin levels were concomitant with progressively rising serum globulin values.

When pooled, irradiated, human-blood plasma was administered, the depleted serum albumin levels were stabilized or made to approach normal, depending upon the severity of clinical involvement. It is felt that the administration of blood plasma resulted in definite clinical benefit with regard to the severity, extent, and duration of paralysis.

Psychological Considerations in the Rehabilitation of the Cardiac Patient in Industry

Edward Stainbrook, Ph.D., M.D., New Haven, Conn. In INDUSTRIAL MEDICINE AND SURGERY, 19:11:528, November 1950.

In our ordinary thinking, the rehabilitation of the diseased person is usually thought of as a restoration of the capacity for work. An early nineteenth-century use of the word "rehabilitation," however, suggests to us another and perhaps equally important meaning. This is an interpretation of rehabilitation as the reestablishment of character or reputation, or, as we might paraphrase it today, the restoration of security and self-esteem. This latter goal is a particular task of the rehabilitory management of cardiac disease.

Respiratory Studies in Paralytic Poliomyelitis

R. B. Bourdillon, E. Davies-Jones, F. D. Stott and L. M. Taylor. In BRITISH MEDICAL JOURNAL, 2:535, September 2, 1950. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 144:13:1128, November 25, 1950.

The observations reported by Bourdillon and his associates were made during the 1949 epidemic of poliomyelitis. Numerous measurements of tidal air were made with a spirometer on patients and on healthy subjects in Both and Drinker respirators and on patients after respirator treatment for poliomyelitis.

Among the subjects studied were nine patients for whom respirator treatment was considered essential. Five of these were too ill for experimental tests and died without having had any measurements of tidal air. The authors give data on the four surviving respirator patients and on the healthy subjects. The measurements showed a wide range of variation from day to day in most cases. The authors believe that in the treatment of poliomyelitis with respiratory involvement there is need for measurements of vital capacity and tidal air, unless frequent measurement of blood oxygen and carbon dioxide are practicable. Early measurements of vital capacity are suggested in order to detect the first signs of respiratory involvement, with a view to resting the muscles concerned by prompt use of a respirator.

The tidal air measurements are indicated as a rough guide to the correct setting of respirator pressures, to avoid underventilation or overventilation. The potential dangers of hyperventilation are discussed, and measurements are given, showing the ease with which they are obtained in respirators.

The authors describe tests on the use of the prone position in respirators and stress the importance of using this position, especially in bulbar cases. They suggest improvements in the Both respirator, such as provision for slower speeds and reduction in the angle of slope and in the thickness of the front panel.

A Simple Method of Treatment for Recent Mallet Finger

Robert E. Van Demark, M.D., M.S., F.A.C.S., Sioux Falls, S. D. In THE MILITARY SURGEON, 107:5:385, November 1950.

Avulsion of the insertion of the extensor digitorum communis tendon on the dorsum of the base of the terminal phalanx is a common injury. The application of finger casts, particularly by inexperienced medical personnel, frequently is ineffective and occasionally is marred by the occurrence of pressure sores over the tightly stretched skin of the knuckles. To eliminate these difficulties, a method of treatment was developed which can be safely used by anyone experienced with plaster of Paris technic.

Supervised exercises and whirlpool are given after the period of immobilization to regain motion in the joints. The method has not been used, nor is it recommended, in cases of severely traumatized joints with rupture of the collateral ligaments, in patients with infectious arthritis, and in older individuals in whom the joints tend to ankylose.

Fractures of the Distal End of the Radius

Fremont A. Chandler, M.D., Chicago. In JOURNAL OF THE IOWA STATE MEDICAL SOCIETY, 40:11:518, November 1950.

Fractures of the distal end of the radius constitute a considerable portion of the skeletal lesions, due to trauma, seen by the general practitioner or surgeon. These fractures occur at all ages and are usually the result of reflex protective attitudes assumed in breaking a fall, the hand and arm being extended as a means of lessening the abrupt contact of the body with the ground.

Reflex circulatory rarefaction of the bones of the hand is common in middle-aged women and many elderly patients. This can be minimized by early activity of the fingers, while in the splints, and by judicious physical therapy. The constant fingering of a rubber sponge or of bouncing plastic putty is helpful.

Orthopedic Aspects of Shoulder Disabilities

Carl Berg, M.D., Washington, D. C. In ARCHIVES OF PHYSICAL MEDICINE, 31:11:703, November 1950.

This is an outline of causes of shoulder pain, for, without accurate diagnosis, intelligent treatment is impossible.

Pain in the upper extremity, or brachialgia, is very common, frequently incapacitating, and often misdiagnosed. Anything which produces pressure anywhere along the nerve pathways supplying the upper extremity can produce pain.

If motions of the neck are limited and painful, or associated with muscle spasm, it is reasonable to suspect that there is something wrong with the cervical spine or its associated structures. If motion in the shoulder joint is limited or painful, one may assume that this joint or its accessories is abnormal.

Probably the most common cause of pain in the neck and shoulders is on a postural basis. The patient is approaching or has arrived at middle age and usually is engaged in a sedentary pursuit. His discomfort often is definite upon arising in the morning, but is most severe after sitting for long periods with the head bent forward over a bench or desk, and especially after driving a car for a long distance.

The mechanism of these changes develops in the following way: As the shoulders continue to sag, the adductors and internal rotators of the humerus become increasingly shortened. The head moves forward so that the cervical spine becomes extended. The anterior cervical muscles contract. The scalene and pectoralis minor muscles take part in this change. The scapula elevators become stretched and weakened, allowing the scapulas to descend. This produces the typical round-shouldered, chin-forward position. Basically, the remedy lies in developing the scapula elevators. This is accomplished by exercises which the patient performs himself. It cannot be effectively accomplished until the tight anterior structures have been stretched. Heat to the contracted muscles and passive and active stretching make it possible

to develop the trapezii by active exercise. A shoulder support, and stretching of the neck by traction, often are valuable adjuncts. If pain is acute, a collar is of great help. Attention to a proper sleeping position is important. A firm mattress to prevent sagging and a bolster type of pillow under the neck, with just enough support under the head to maintain it in neutral alinement, are indicated. Total postural correction is necessary for satisfactory results.

The Community Rehabilitation Center and the General Practitioner

Arthur C. Jones, M.D., Portland, Ore. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 144:12:994, November 18, 1950.

The general practitioner is the logical ally of the Community Rehabilitation Center because of the breadth of his medical and social interests. The Community Center, in turn, offers to the general practitioner means of accomplishing more for certain of his patients than has previously been possible. The organized procedures of the centers which are growing up in this country are furnishing practical tools by which the members of the medical profession can demonstrate their abilities in the rehabilitation of persons to the "fullest physical, mental, social, vocational, and economic usefulness of which they are capable."

The general practitioner has the first contact with a majority of the persons who need rehabilitation.

An outpatient rehabilitation center can serve the needs of a sizable community through referrals from the general practitioners of the area.

Any organization may begin a community rehabilitation center, preferably on a nonprofit basis. The widest spread of interest among physicians and the community service organizations should be obtained. The members of the medical profession are beginning to understand that the center is built to serve the needs of the doctors, the patients, and the public, and that professional support by the physicians is essential to successful rehabilitation. Through such cooperation, the community and the physicians alike can be brought to a greater sense of social responsibility. This can and should be done within the framework of our own democracy and at a local level.

By making use of the principles of rehabilitation, the general practitioner can demonstrate the fact that the handicapped can be converted from tax absorbers into wage earners. He can prove that the medical profession is truly interested in the social effects of medical care. He can improve the attitude of the public toward medicine by showing that rehabilitation of the disabled citizen is economically sound as well as humanitarian. Last, by prescribing rehabilitation, the physician can show that investment in such physical restoration is investment in the moral upbuilding of the patient. A premium must be placed on willingness to overcome a disability rather than on maintenance of some physical handicap as a ticket to security.

Book Reviews

Fractures and Dislocations in General Practice. *By John Hosford, M.S., F.R.C.S., Assistant Orthopedic Surgeon to St. Bartholomew's Hospital. Cloth. Price, $5.00. Pp. 290, illus. 87. Paul B. Hoeber, Inc., Medical Book Dept. of Harper & Bros., New York, 1950.*

An excellent condensation of the extensive and often confusing subject of fractures and their treatment. In reviewing this book it must be conceded that the subject of fractures is summarized without sacrificing many of the essential elements.

In his preface to this, the second edition, the author's emphasis, that the patient be taught at all stages of treatment to regain the use of his injured limb so that he may be restored to the fullest possible economic efficiency, is noted with pleasure.

Unfortunately, nowhere else in this otherwise excellent text is this repeated. For example, in the treatment of fractures of the upper end of the humerus, two weeks of immobilization in a sling bandaged to the side is advocated, and active movements are then begun. If this text is for the general practitioner and the undergraduate, it is more important to describe the active motion advised than to record the obvious necessity for splinting the fracture.

The treatment of any fracture after reduction and immobilization is incomplete if it does not emphasize the necessity for full motion in neighboring joints not splinted.

This text makes a good reference for the physical therapist if a quick, concise reference work with regard to diagnosis, complication, and one method of early treatment is desired.

Reviewed by RICHARD KAPLAN, M.D., *Instructor in Orthopedics, Graduate School of Medicine, University of Pennsylvania.*

The High Double Arm Amputee. *By John B. Seeley, Consultant in Amputee Training to the Kessler Institute. Pp. 54, profusely illus. Price, $1.00. Kessler Institute for Rehabilitation, West Orange, N. J., 1950.*

The author, a high double arm amputee, has described some of the aids and technics which he has found valuable in meeting the exigencies of daily living. The applicability of these technics will vary necessarily with each amputee. As Mr. Seeley states, "each amputee must discover for himself the various means to develop what physical potential he has left."

The book contains nine sections. The first is entitled "General Instruction," in which the author speaks of minimal equipment and gadgets used by the amputee, and, in addition, some philosophical remarks concerning "idleness," "solution of a problem," "self-centeredness," and "self-consciousness."

Mr. Seeley uses a cineplastic arm and has devoted Section Two to a brief description of cineplasty surgery, a description of the cineplastic prosthesis, and important points concerning the care of prostheses.

The remaining sections are devoted to the following activities of daily living: dressing, washing and grooming, eating and drinking, lifting and carrying, business activities, and sports and recreation.

Mr. Seeley has, with the aid of numerous illustrations, described quite clearly the methods by which he accomplishes these activities. His book is written in an easy personal style and will be of interest and value to all bilateral arm amputees as well as to all physical and occupational therapists.

Reviewed by PAIGE L. WEAVER, *Section on Physical Medicine, Veterans Administration, Washington, D. C.*

SCHOOLS APPROVED FOR TRAINING PHYSICAL THERAPISTS

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director	Technical Director	Entrance Requirements	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
CALIFORNIA							
[1]Childrens Hospital Society, Los Angeles	Samuel S. Mathews	Sarah S. Rogers	a[6]-b[6]-d	14	Sept	$300	Cert. or Degree
[2]College of Medical Evangelists, Loma Linda, Calif.	F. B. Moor	R. Wm. Berdan	a-b-c-d	12	Sept	$225	Cert. or Degree
[1]Univ. of So. California, Los Angeles ..	Charles L. Lowman	Charlotte W. Anderson	a-b-d-e-g[6]	14	Sept	$594	Cert. or Degree
[1]Univ. of California Med. School, San Francisco	Lucile M. Eising .	Margery Wagner	d-e	12	Sept	$220[3]	Cert. or Degree
[1]Stanford Univ., Stanford (Palo Alto) ..	Wm. Northway ...	Lucille Daniels	a-d-e-f-g[6]	12	Jan June Sept	$620	Cert. or Degree
COLORADO							
[1]Univ. of Colorado Med. Center, Denver	Harold Dinken ...	Mary Lawrence	a-b-d	12	Sept	$350	Cert. or Degree
ILLINOIS							
Northwestern Univ. Med. School, Chicago	Emil D. W. Hauser	Gertrude Beard	a-b-d-e	12	Oct	$450	Cert.
IOWA							
[1]Univ. of Iowa Med. School, Iowa City	W. D. Paul	Olive C. Farr	a[6]-e	12	Sept	$200	Cert.
KANSAS							
[1]Univ. of Kansas, School of Med., Kansas City	Donald L. Rose ...	Lilyan G. Warner & Ruth Monteith	a-b-d-g[6]	12	Feb Sept	$80[3]	Cert. or Degree
MASSACHUSETTS							
Bouve-Boston School of Phys. Educ., Boston	Howard Moore ...	Constance K. Greene .	g[6]	36	Sept	$550	Degree
Simmons College, Boston	Wm. T. Green .. / Arthur L. Watkins	Janet B. Merrill	a[6]-b-d-g[6]	16-36	Sept	$650	Cert. or Degree
Boston Univ. College of Phys. Ed. for Women: Sargent College, Cambridge	Kenneth Christophe	Adelaide McGarrett .	a-b-d-f-g[6]	12 4 yrs.	Sept	$495	Cert. or Degree
MINNESOTA							
[1]Univ. of Minnesota, Minneapolis	Frederic J. Kottke	Ruby M. Green	d-f-g[6]	2 yrs.	Sept	$126[3]	Degree
[1]Mayo Clinic, Rochester	Earl C. Elkins	Harry Keown	a-b-c-d-e	12	Sept	$250	Cert.
MISSOURI							
[1]Washington Univ. School of Medicine, Barnes Hospital, St. Louis	Sedgwick Mead ..	Beatrice F. Schulz ...	f	2 yrs.	Sept	$450[4]	Degree
[1]St. Louis Univ. School of Nursing, St. Louis	A. J. Kotkis	Sr. Mary Imelda	g[6]	36	Jan Sept	$300	Degree
NEW YORK							
Albany Hospital, Albany	John W. Ghormley	Catherine Graham ...	a-b-d	12	Sept	$250	Cert.
[1]Columbia Univ., New York	Wm. B. Snow	Floy Pinkerton	a-e-f 1 or 2 yrs.		Sept	$450	Cert. or Degree
[1]New York Univ. School of Education, New York	George G. Deaver	Elizabeth C. Addoms .	a[6]-b-d-g[6]	12	Sept	$589	Cert. or Degree
NORTH CAROLINA							
[1]Duke Univ. School of Med., Durham	Lenox Baker	Helen Kaiser	a[6]-b[6]-d	15	Oct	$350	Cert.
OHIO							
[1]Cleveland Clinic, Cleveland	S. G. Gamble	Mildred Heap	a-b-c	12	Oct	$200	Cert.
PENNSYLVANIA							
[1]D. T. Watson School of Physiatrics, Leetsdale	Jessie Wright	Kathryn Kelley	a[6]-b[6]-d	12	Oct	$300	Diploma
[1]Univ. of Pa. School of Auxiliary Med. Services, Div. of P.T., Philadelphia	George M. Piersol	Dorothy Baethke	g[6] / e	4 yrs. 12	Sept Sept	$600[7] $400[7]	Cert. & Degree Cert.
TEXAS							
[2]Hermann Hospital, School of Physical Therapy, Houston	Oscar O. Selke, Jr.	Mary Elizabeth Kolb .	a-b-d	12	Oct	$300	Cert. or Degree
[1]Univ. of Texas School of Med., Galveston	G. W. N. Eggers ..	Ruby Decker	a-b-d	12	Jan	$163[3]	Cert.
VIRGINIA							
[1]Baruch Center of Physical Med. of Medical College of Virginia, Richmond ..	Walter J. Lee	Susanne Hirt	a-b-c-g[6]	12	Sept	$275[3]	Cert. or Degree
WISCONSIN							
[1]Univ. of Wisconsin Med. School, Madison	Harry D. Bouman	Margaret Kohli	a-b-f-g[6]	12	Sept	$120[3]	Cert. or Degree
MEDICAL DEPARTMENT—U. S. ARMY							
(a) Medical Field Service School, Brooke Army Medical Center, San Antonio, Texas, and	James E. Tate, Lt. Col., M.C.	Agnes P. Snyder, Major, WMSC	b-e	12[5]	Aug Mar	None	Cert.
(b) Fitzsimons General Hospital, Denver, Colorado, or	H. B. Luscombe, Colonel, M.C.	Olena M. Cole, Captain, WMSC	Completion of Medical Field Service School				
(c) Walter Reed General Hospital, Army Medical Center, Washington, D. C.	John H. Kuitert, Lt. Col., M.C.	Brunetta Kuehlthau, Major, WMSC	Completion of Medical Field Service School				

Entrance Requirements

For One-year Course: a=Graduation from accredited school of nursing; b=Baccalaureate degree with major in physical education; c=Two years of college with science courses; d=Three years of college with science courses; e=Baccalaureate degree with required science courses.

For Two-year Course: f=Two years of college with science courses.

For Four-year Degree Course: g=High school graduation.

[1]Male students admitted.

[2]Nonresidents charged additional fee.

[3]Certificate granted by Childrens Hospital Society; degree granted by University of California at Los Angeles.

[4]Tuition reduced second semester of second year.

[5]12 months includes training at the Medical Field Service School and Fitzsimons or Walter Reed General Hospitals.

[6]Additional college science required.

[7]Plus additional University fees.

[8]Advanced standing students accepted.

Coming Meetings

Date	*Organization*	*Place*
February 21, 1951	Bay State Society for the Crippled and Disabled—Rehabilitation Conference	Copley Plaza Hotel Boston, Massachusetts
March 12-14, 1951	Conference on Chronic Disease: Preventive Aspects	Chicago, Illinois
April 18-21, 1951	International Council for Exceptional Children—Convention	Hotel New Yorker New York City
June 16-22, 1951	American Physical Therapy Association—Annual Convention	Glenwood Springs Colorado

Classified WANT-ADS

WANTED: QUALIFIED PHYSICAL THERAPIST. Work at Institute of Logopedics, approximately 75 in-patients, majority youngsters. Under direction of qualified orthopedist; write H. O. Marsh, M.D., Institute of Logopedics, Wichita, Kansas.

WANTED IMMEDIATELY: Qualified Physical Therapist for Cerebral Palsy Center. State qualifications and salary. Mrs. J. F. Haydu, Exec. Sec'y, Kanawha Co. Society for Crippled Children, 214 Professional Bldg., Charleston, W. Va.

TWO POSITIONS OPEN for qualified physical therapists, Children's Convalescent Home & Orthopedic Center. Interesting, active, in-patient department. Excellent medical supervision. Moving into new building conveniently located. Opportunities for postgraduate training with all expenses paid. Attractive hours and salary. Write: Mrs. Lillian Cary, R.N., Supt., MARY FREE BED CONVALESCENT HOME & ORTHOPEDIC CENTER, 920 Cherry St., S.E., Grand Rapids, Michigan.

WANTED: An Assistant in physical therapy. Information on request. Salary open. Guthrie Clinic and Robert Packer Hospital, Sayre, Pa.

WANTED: March 1st. Qualified physical therapist. Well-established Junior League Cerebral Palsy Nursery School. Modern, fully-equipped location. Excellent medical direction; nursery school teacher and speech therapist. Close contact with other types of therapy. Opportunity for advancement and further training. State qualifications and salary. Mrs. H. Holmes Ellis, Pres., Junior League of Grand Rapids, 920 Cherry, S.E., Grand Rapids 6, Michigan.

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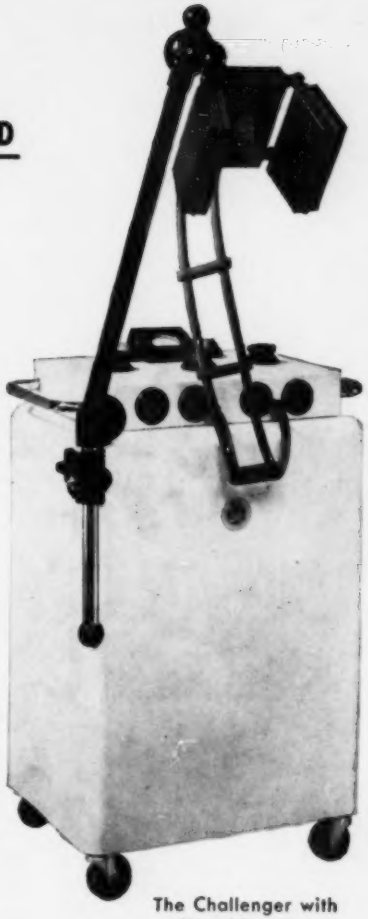

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